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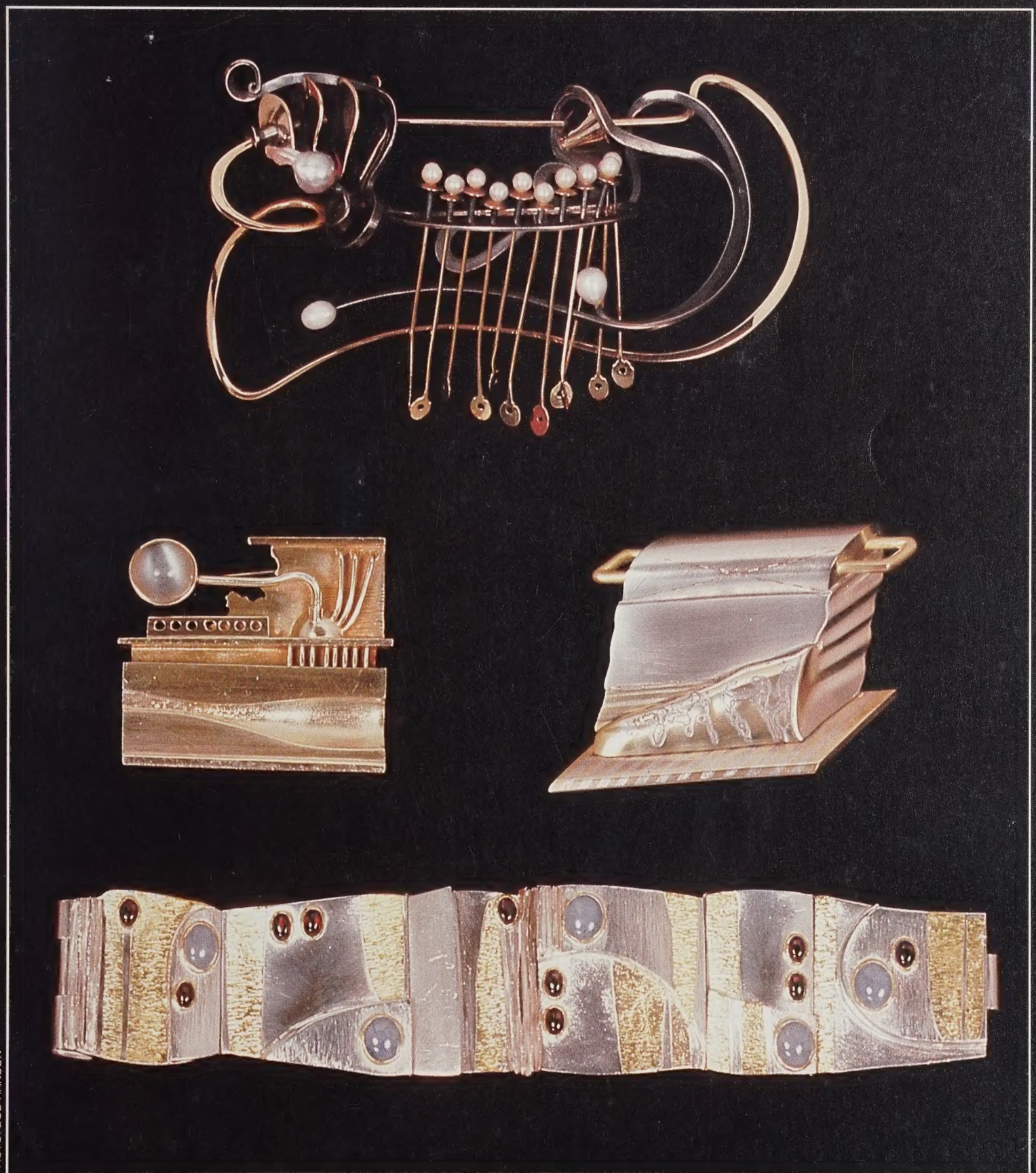

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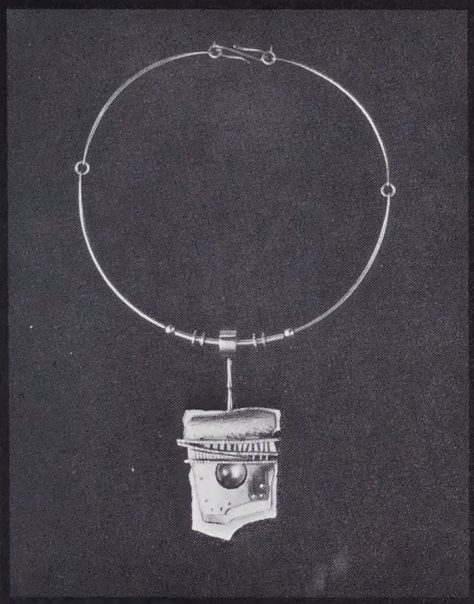

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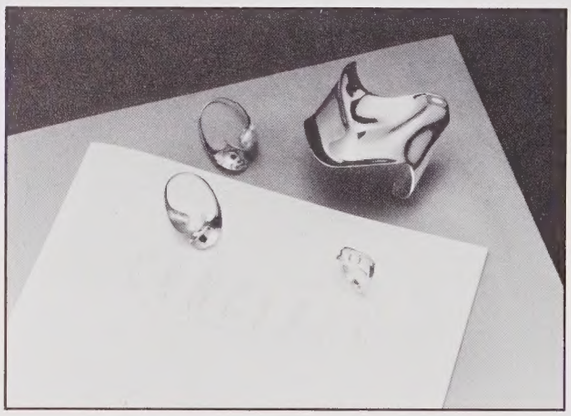

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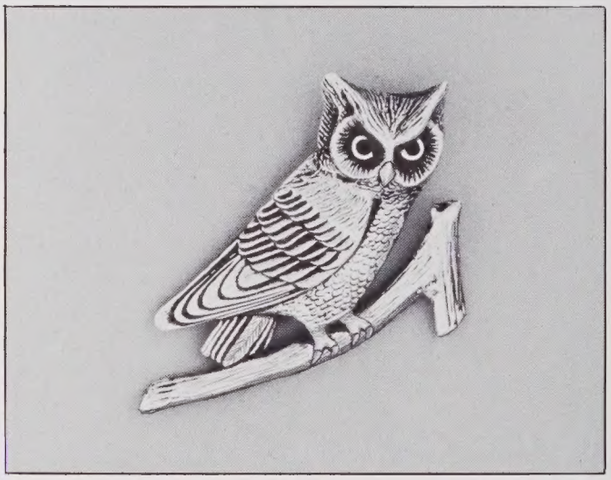

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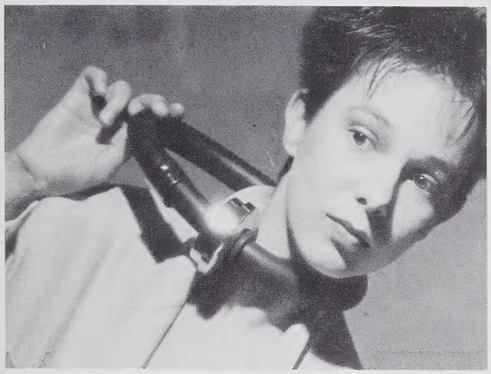

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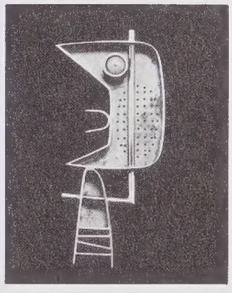

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Cover — Top: Albert Paley, *Brooch*, 14k gold, silver, freshwater and baroque pearls, 8.5 x 13 cm, 1969; Center left: Olaf Skoogfors, *Dimsdale Machine* brooch, gold-plated silver, moonstone, 5.2 x 5.7 cm, 1969; Center right: Claus Bury, *Brooch*, silver, brass, copper, gold alloys, 5.7 x 8.5 cm, 1974; Bottom: Toni Goessler-Snyder, *Bracelet*, 24k gold, silver, chalcedony, garnet, 3.9 x 20.2 cm, 1979. Photo: Bob Hanson

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LETTERS

Dear Editor:
In *Metalsmith* I see many writers celebrating the liberation of jewelers and metalsmiths from the bonds of tradition, function and technique. We are free to express ourselves in new ways and with new materials hitherto undreamed of. Well, it is the 1980s: space shuttle, micro chips, high tech, et cetera. So, it is small wonder that these elements find their way into contemporary metal arts, and I applaude this.

The concious rejection of function may stem partially from the profusion of mass-produced, poorly designed, disposable, functional objects in our society today. A lack of function also implies luxury, not to mention art.

And technique: I hear that there has been an overemphasis of and preoccupation with it

Can jewelers, metalsmiths or sculptors adequately express their ideas, concepts, feelings if they cannot properly perform the technique(s) most suited to actualizing those concepts clearly? Also, is an artist working in a traditional technique necessarily limited?

A point I'd like to touch on is the possibility of expressing the duality of life through the sensitive unity of form and function. For example, the Japanese sword. In Japan, the sword has long been regarded as one of the highest forms of artistic expression. The subtle effects created by the swordsmith in the color of the steel, the temper line, overall shape and meticulous polish, as well as the goldsmith's elaborate carved, chased and inlayed fittings, represent some of the finest art.

In addition to this, the sword embodies function. It was (and is) an object of social status (like jewelry); it is also a deadly weapon that can end life with a flick of the wrist. So, here lies one expression of the dual nature of life, that it can be beautiful and ferocious at the same time.

This is certainly not to say that we must have function in our work, but simply that it can be a contributing factor if it is successfully integrated into the work with thoughtful, innovative or traditional, design, materials and techniques. Indeed, it is high time that metalsmithing be solidly included in the pure art arena, a point well made by Haikki Seppä in his recent article "Objects in Space" (*Metalsmith*, Winter 85).

But does this mean that we must abandon function, traditional formats, and ancient techniques in search of the new? And is something better simply because it is innovative? There should be room in our field for all of this.
—Scott Lankton

Dear Editor:
Concerning the dissolution of the Program in Artisanry at Boston University and *Metalsmith's* involvement by publishing pleas for help (Spring 1985 —Letters to the Editor), I can add the following: As the parent of a Boston University student (not in PIA) I was sent in early March a self-congratulatory letter from Dr. Arthur G.B. Metcalf, Chairman of the Board of Trustees, praising the university's expansion of the computer science department into a "new building," holding down the costs—tuition is $10,000, having been raised *only* 10.9%.

In haste I expressed my opinion that building one successful program by killing another was not something to be proud of. If all everyone says about the situation is true, why *weren't* students enrolling in the PIA?—Cost of tuition and living in Boston? I could understand that very well.
—Yvonne Arritt

PIA Follow-up

On April 11, 1985 the Boston University trustees authorized the transfer of the Program in Artisanry to the Swain School of Design in New Bedford, Massachusetts. Negotiations are currently under way with Swain, and if the transfer is effected the PIA will be moved in its entirety and opened in the fall of 1985. All full-time faculty will be offered positions at Swain and all PIA students will be able to transfer without loss of academic credits. Current curriculum will continue to be offered at Swain.

Of the four offers received, Swain was the first choice of faculty, students and administration. Tuition at Swain will be $5,300 and the cost of housing is approximately one-half that in Boston.

NATHAN WINKLER 1904–1985

Nathan Winkler has been quoted as saying, "I regret that I only have one life to give to the jewelry industry." And, indeed, Nathan was a man who spent his entire life involved in all aspects of the world of jewelry. Born July 27, 1904 in humble surroundings, Nathan quickly began his initiation with metal by securing a job making jewelry at age 14. Four years later he was the shop foreman and after another 10 he completed school and became a jewelry instructor in a New York City technical high school. Placing (in industry) the many rough and underprivileged students he taught should have provided ample satisfaction for one man's lifetime, yet he continually pursued a professionally active stature, which resulted in being named technical editor for JC-K (*Jewelers Circular-Keystone*—the nation's leading commercial jewelry magazine). As technical editor, his job required world travel, which he relished and where he gained invaluable technical knowledge as well as a broad perspective of international jewelry. Because of this national and international prominence, he was inducted into the Worshipful Company of Goldsmiths in London as an associate member, an honor rarely bestowed on Americans.

Nathan became involved with SNAG in the late 1970s when he discovered the work of several of its members. Impressed by the design and technical qualities of art jewelery, he quickly became enchanted by its beauty and its makers' attitudes. After spending a lifetime in the commercial and industrial jewelry trade, he recognized art jewelry as a wonderful, refreshing change, so he pioneered a link between the art and industrial worlds. Art jewelry suddenly became more prominent in JC-K, and he began to feed technical articles to *Goldsmiths Journal* (forerunner to *Metalsmith*). Always amazing was the fact that he sold his articles to JC-K yet donated them free to SNAG. He spent his "twilight years" making contacts with SNAG members at conferences, workshops, schools and studios and then trying to couple artists with opportunities within the industrial and commercial trade. He constantly promoted SNAG, *Goldsmiths Journal, Metalsmith,* as well as individual art jewelers. While many gained from his professional experience and knowledge, I was also fortunate to know him on a personal level. He was truly inspirational, so full of energy, talent, knowledge and drive that you forgot he was 80 years old. He was a warm, kind, respectful, responsible and generous man.

At Nathan's request, his entire library has been donated to SNAG so that part of his life can continue in all of us. (For more information on Nathan's contribution, see *Metalsmith,* Spring 83, volume three, number two, page 32, where he is profiled by Anne Krohn Graham.)—M.B.

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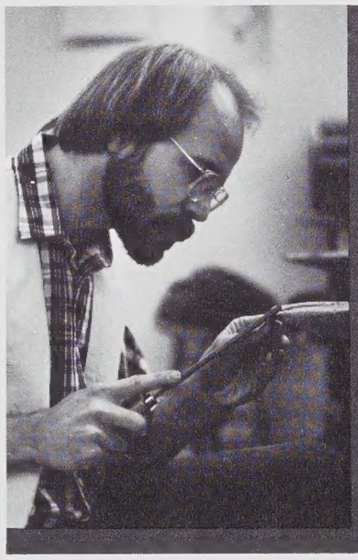
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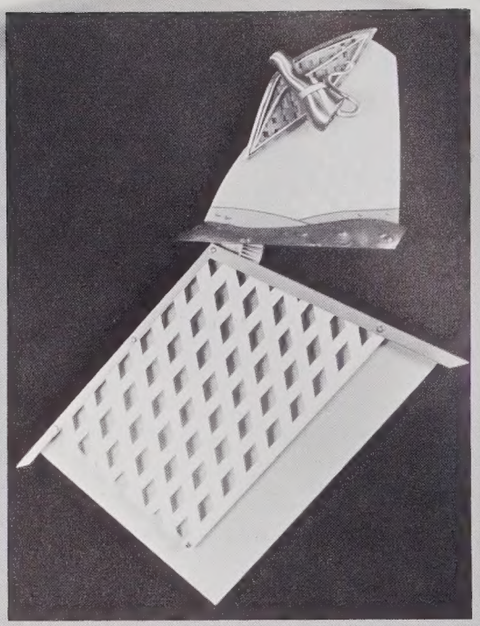
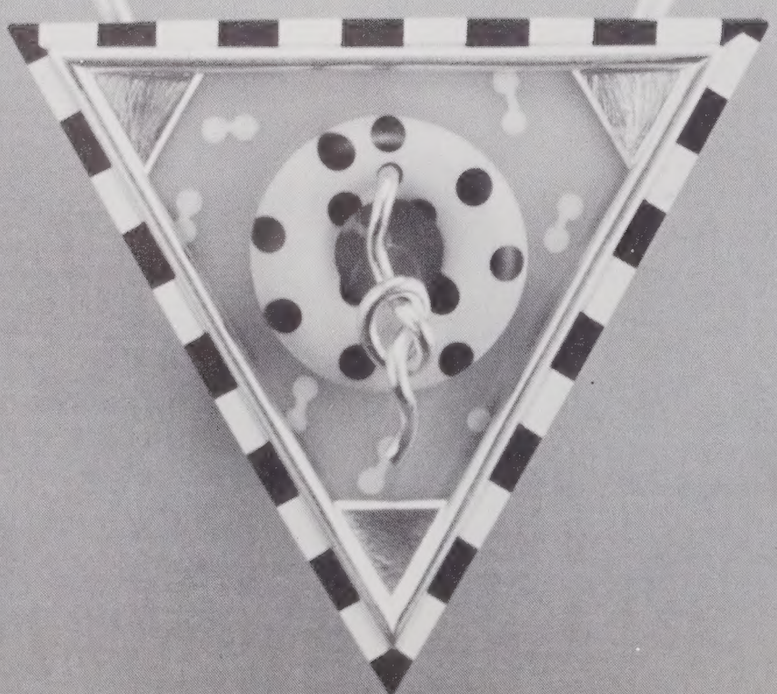




DISCURSIVE ART

THE HELEN WILLIAMS DRUTT COLLECTION OF MODERN JEWELRY 1964–1984

by Carole Hanks

The Helen Drutt collection offers a personal view of the development in fine art jewelry over the past 20 years. A refined eye that understands new developments and experimentation chose works of jewelry for their intelligence, wit, seriousness of purpose, individuality and technical excellence. Most major areas of recent development in the field are represented by these meticulously selected examples. The one area notable by its absence is that of Scandinavian design, which was so influential in studio design in the 60s.

The collection is essentially an American one, that is, the work is predominantly from U.S. artists. However, from the mid-70s to the present, the collection has developed an international flavor with work from Holland, England and Germany leading a gathering that ranges from Spain to Japan.

All the individuals and works represented in this collection are an essential part of current developments. Individual digressions include: dialogues in pictorial, iconographic, painterly, ritual or ceremonial, organic, geometric and machine concepts. There is no clearly unfolding path from one approach to another. One could follow a number of paths through the plethora of experiments.

The pictorial approach could be traced from J. Fred Woell through Fritz Maierhofer, Richard Mawdsley, Robin Quigley, Bruce Metcalf, Klaus Bury, William Harper, Edward de Large, Esther Knobel and Otto Kunzli. But this is not a clearly defined path and the diversity is extreme. Metcalf's work is comfortably pictorial, but Knobel's is not. Although Knobel's work has a pictographic quality, it draws heavily on the idea of ritual and ceremony in its use of color and form. Bury's work is pictorial in concept, but rather than human imagery it is concerned with mathematics and the subtle and twisted perspective of a space-time continuum. The pictorial approach becomes iconographic in both Woell's and Maierhofer's work. Here are pictorial symbols that make claims for cultural universality and, in doing so, become icons.

The dialogue on a machine esthetic could be traced along an equally digressive path. Working backwards from the most recent works, one might move from Paul Derrez to Maria Hees, Eric Spiller, David Tisdale, Karl Bungerz, Emmy van Leersum, Franz van Nieuwonborg, David Watkins and Wendy Ramshaw. These sleek works are often sculptural statements and frequently geometric in intent, like Ramshaw's innovative small-scale sculptures, pieces of which are wearable jewelry. Watkins's refined combinations of acrylic and precious metals brings the idiom to a stage of modern classicism. Derrez takes the refinement beyond classicism into the space age, while simultaneously reminding one of historical precedents. Van Leersum adds color, a minimalist's color, once removed from the painterly tradition. Once again, diversity within the grouping prevails.

So, too, is the ritual or ceremonial approach a widely discursive category. Esther Knobel's collars speak of primitive forms that in turn are reminiscent of ceremony. From a different sensibility this is also true of Breon O'Casey's work. Caroline Broadhead's monofilament collar is conceptually, rather than formally, related to the primitive and the ritualistic, which leaves its esthetic form free to be developed out of other modes. Lam de Wolf's theatrically scaled collars are also linked to the concept of ceremony. However, their painterly color and ephemeral materials create formal ties also.

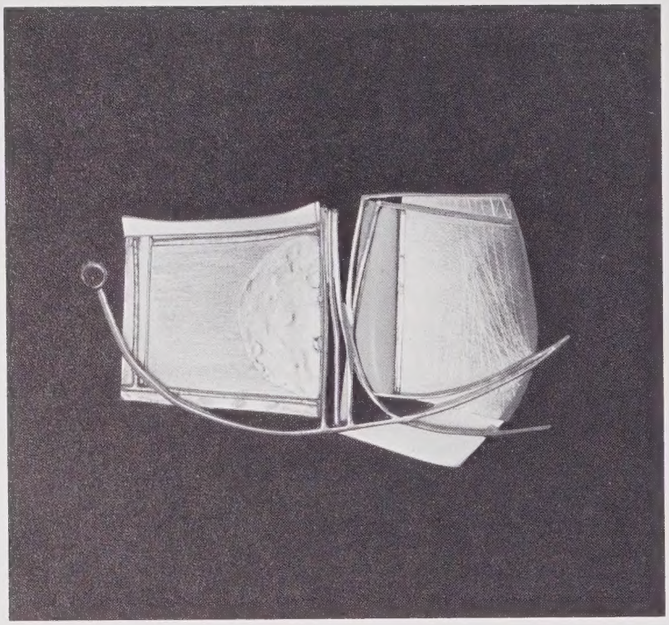
What becomes apparent is the interdependence of the paths. Individuals do not confine themselves to a single direction, and the development of artists, objects and directions intermingles. The collection is characterized by this diversity which is its strength and its value as an art historical statement.

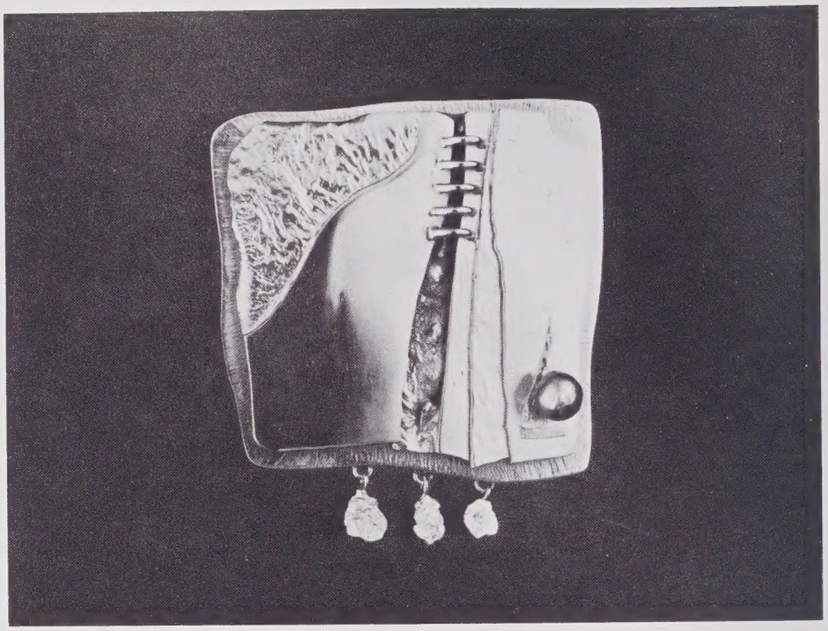
Art since the 50s has inclined to be discursive. It has been a rambling, digressive discussion that has ranged over a wide field of subjects. It has talked about artists' psyches, commercial objects, optic nerves and external reality. It has discussed flatness, materials, negative volume and environmental space. It has talked about being ambiguous, ephemeral, literal and metaphysical. It has talked about its place in history. It has discussed its parameters. It has concerned itself with definitions. What began, earlier in this century, as neatly ordered discourse for the purpose of throwing off old modes and customs has developed into what is now labelled a plurality of styles.

The Helen Drutt collection of contemporary jewelry is a microcosm of this discursive activity. Beginning with work created in 1964 and ending with work from 1984, the collection spans the most active years of a wide-ranging discussion. The collection includes 187 pieces of jewelry by 57 artists, creating an insistent dialogue on formal aspects of esthetics and an argument on such topics as abstraction, representation, content, ritual, intellect, necessity, decoration, organism, the machine, minimalism and the pursuit of beauty. This is no constructed discourse; it is an intense creative discussion that is concerned with the very essence of jewelry and develops, in rapid succession, a multitude of directions.

The discursive nature of the collection is set by its earliest works: brooches, fibulae, torques and necklaces by Albert Paley and Stanley Lechtzin. Fibulae and torques are ancient jewelry forms. A fibula is a type of brooch, specifically a clasp or buckle, used to hold a garment together. Torques are ancient forms of necklaces and bracelets made

Opposite page, inset left: Alice Klein, *Epoxy Neckpiece, Series 2,* acrylic, epoxy, nickel silver, silver, 18.5 x 14 cm, 1982; **inset right:** Bruce Metcalf, *Bright Figures Over a Low, Bad Land,* brass, silver, copper, plexiglass, acetate, paint, 14.3 x 23.3 x 2.4 cm overall, 1978; Robin Quigley, *Triangular Neckpiece 2;* silver, gold, synthetics, 2½" triangle, 1978





Above left: Toni Goessler-Snyder, *Brooch*, sterling silver, 24k gold, ivory, pink tourmaline, 8.9 x 5 cm, 1979; **Above right:** Olaf Skoogfors, *Brooch*, gold-plated, baroque pearl, 6.5 x 5.8 cm, 1973. Photo: Olaf Skoogfors

of twisted metal bands. By using the ancient terms, fibula and torque, instead of the contemporary ones, brooch and necklace, historical connection is implied. Neither Paley nor Lechtzin actually develops his esthetic out of the ancient forms that their labelling connotes. Their inspiration for design ranges from Art Nouveau to coral and crystalline growth structures and each artist develops his own unique direction. Perhaps a concentrated reworking of the antique form would have led to a more cohesive taxonomy, if that were a desired goal. However, the inspiration from several directions is layered with individual predilictions. The old labels are attached to new pieces; an instant link with the past is formed and credence is given to experimental design. This is the basis of the eclectic discussion that ranges throughout the collection.

Nature

As the 60s progressed into a back-to-the-land movement, many artists began looking to nature for design inspiration. Romantic notions idolizing the natural spirit led to a jewelry esthetic that was visceral, undulating, asymmetrical and organic. Lechtzin's electroformed crystalline structures speak of nature's growth; the hand of man seems far removed from the creation of the object. Olaf Skoogfors uses soft, undulating textures and asymmetry to relieve the regular forms and edges of his brooches. Paley's clean, flowing lines, though hard-edged, are also organic. Inspired by Art Nouveau and translated into a contemporary idiom, Paley's work represents a double transformation of style in which he redevelops a dialogue that has already been developed nearly three-quarters of a century before. His is the historical contact in the collection's early discussion.

Toward the late 60s, subtle developments in the interpretation of nature bring hints of landscape, inclusion of natural objects and representations of natural organisms. This new mode borders on the pictorial. Nature is referred to rather than absorbed and descriptive titles become part of the symbolic and referential imagery. William Harper's *Pagan Baby #4: The Serpent*, *Pagan Baby #6: The Scarab*, and *Unrequited Valentine #3* develop natural themes that have vaguely psychological and philosophical overtones. The pictorial nature mode develops rapidly in its own direction soon leaving the discussion of nature far behind.

Explorations in geometric form are not absent from the earlier pieces of the Drutt collection. Geometry is the antithesis of nature and lends itself readily to a machine esthetic. Yet the overriding feelings for nature in this period turn even geometry into a softer form. This is achieved through a mixing of shapes, many of them irregular in the mathematical sense, subtle shifts of size and scale within the same work, frequent piercing of form and combinations of finishes. The result is a maximal geometry, at least in comparison to the clean, hard minimalism of today's geometric forms. It is geometry that has been humanized.

The dialogue on nature wanders along exploring various paths that are bound up with abstraction, the intellect, history, natural structures and growth. The initial inspiration from romanticized nature is only the beginning of the process. An entire body of formal concerns is also called into question.

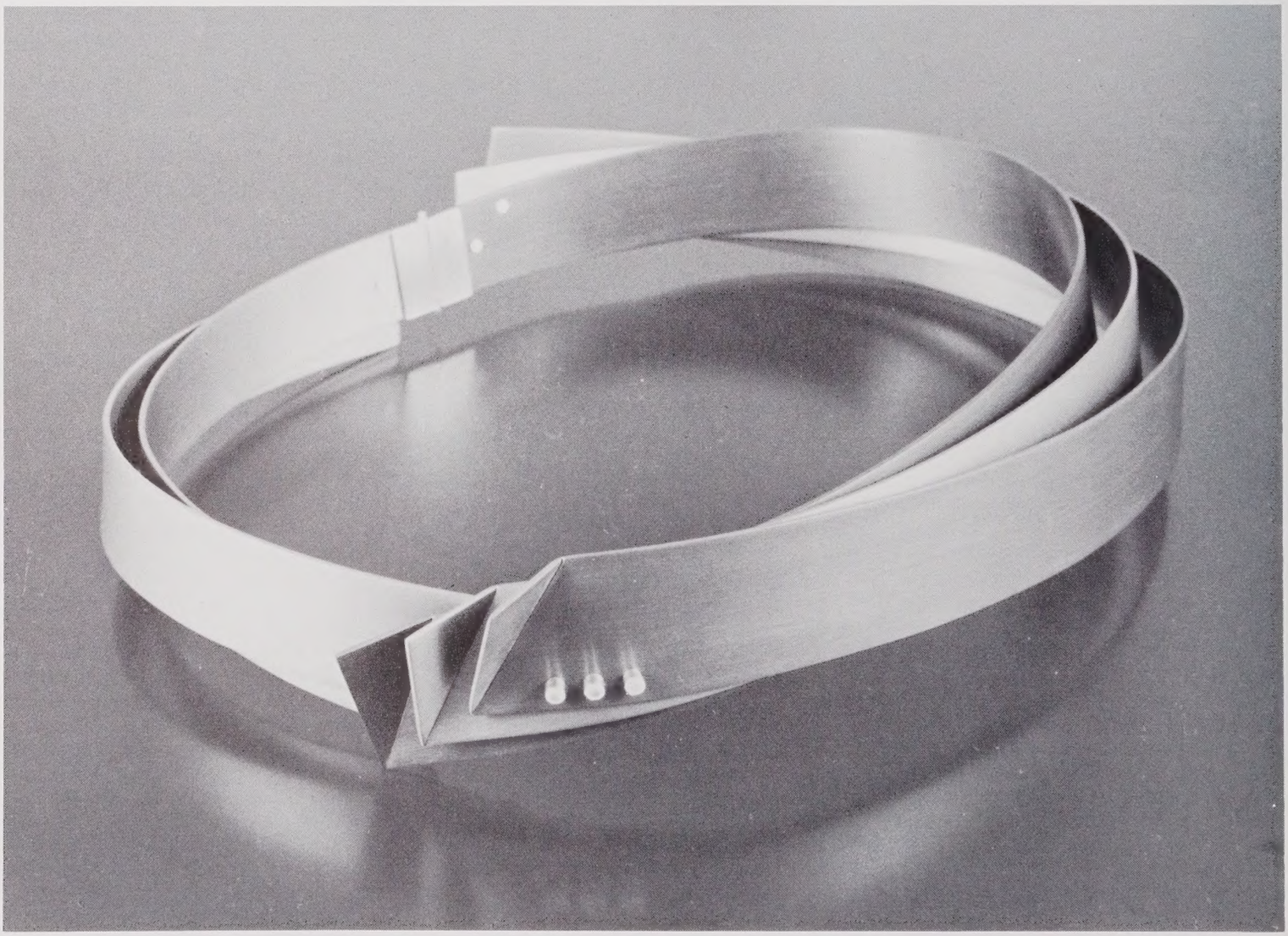
Inspiration from nature leads early on into a consideration of the inherent qualities of things, particularly those things that are the basic materials comprising art jewelry. Gold, silver, copper, brass, precious and semiprecious stones and then plastics and glass are made to stand up and state their essential natures. Integrity of materials becomes at least a serious concern, if not an ideology, and the formal aspects of design esthetics are much manipulated as a result.

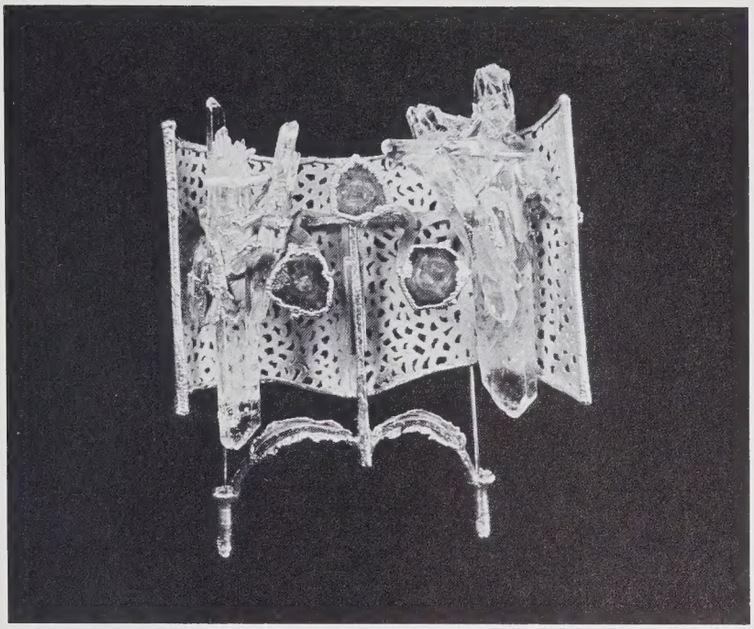
Texture

Texture is a formal device of great import and design influence. It is inextricably a part of the search for material integrity. Naturalness, pure organic textural truth, is a moot issue. The essential nature of a material has many levels of definition. Perhaps Lechtzin's electroformed work comes closer than any to manifesting untrammelled nature. But that is only where the discussion of formal issues begins. The human hand is also part of nature and traditional handworked metal techniques can be made to imitate the flowing growth of natural texture. Reticulation, chasing and carving readily lend themselves to producing organic surfaces. The question may well be: Is there a greater honesty in acknowledging the work of the human hand, tradition and history than there is in trying to remove those qualities in order to pursue some kind of purity of nature? Perhaps it suffices to say that one scarcely can remove the touch of the human hand from the kind of work in question and point out that this direction is not seriously pursued for long.

The tendency, when speaking about texture, is to think of it in terms of a nonsmooth surface. Texture may imply "tooth," but it ranges from extreme structural roughness to nearly smooth, minutely moulded surfaces. Metals are malleable and receptive to almost any kind of surface treatment. This makes the discussion of textures that are suitable to the integrity of metal particularly difficult as almost any amount of roughness or smoothness works equally well. But metal for its own, natural sake was much exploited by those who were developing an organic esthetic. Whereas in the not too distant past metal had been used as a structural device to enhance beautiful minerals, it was now glorified as inherently beautiful. Skoogfors's work develops a variety of technical themes to this point. Stones, too, are used in their more organic forms in order to emphasize natural beauty. Artists studying the forms and content of nature seem to prefer a rough or undulating quality, thereby

Richard Mawdsley, *The Pequod* pendant, silver, green onyx, carnelian, 11.8 x 7.7 cm pendant, 1972. Photo: Norinne Betjemann





Opposite page, top: Suzan Rezac, *Necklace*, silver, gold-plated brass, steel, sterling silver, 1981; **below:** David Tisdale, *Neckpiece*, anodized aluminum, sterling silver, diamonds, 1½ x 7 x 5", 1981. **Above left:** Stanley Lechtzin, *Brooch*, electroformed silver gilt with watermelon tourmalines and quartz crystals, 1969; **Above right:** Susan Hamlet, *Shim Bracelet 1*, stainless steel, sterling silver, plastic, rubber, 9.5 cm diam., 1983

PERSONAL NOTES ON THE COLLECTION

During the 1960s my awareness of the modern crafts movement began to surface, leading me on an intense visual journey: looking at work, visiting artists and exploring studios. Frustrated by the lack of scholarship in the field, I began to search everywhere for information. My independent study course in modern crafts had begun. I was absorbed by these activities and despaired at the lack of information and absence of dialogue in the cultural community. At this time, the concept of forming a collection of modern jewelry was neither intentional nor was it a primary concern.

In 1964, I was the proud owner of a gold-plated circle pin from my high school days (probably purchased sometime in the late 40s) and my grandmother's cameo brooch, laced in platinum and diamonds, which was given to her by my father in 1918. The third acquisition was a replica of Queen Shubad's golden leaf necklace, purchased at the University of Pennsylvania Museum shop in 1956. I wore it with pride! A decade later I discovered that it had been made by Olaf Skoogfors.

In 1965, during a visit to Stanley Lechtzin's studio, a brooch nearing completion captured my eye. I had never seen a pin that incorporated the esthetic qualities of painting and sculpture, and it stirred me. Simultaneously, I experienced an intellectual encounter with the work of Olaf Skoogfors. Lengthy dialogues about nature, music, industrialism, socialism and constructivism followed, evoked by the search evidenced in his pins and pendants. Initially, my reason for owning them was to promote my newly born interest in modern crafts. No one could carry a vessel or chair into a meeting, but wearing a brooch was like being a living billboard. Jewelry acted as a catalyst for questions from museum directors, curators, acquaintances, students and strangers.

I remember delivering an impromptu lecture to a charwoman in a train station as she tried to understand the lyrical complexities of an Albert Paley brooch. At another time I was an unannounced guest lecturer during a flight from Philadelphia to Detroit because I was wearing an electroformed torque by Lechtzin. The recognition of these works caused continuous debate and inquiry, and it was important for them to have a walking educator.

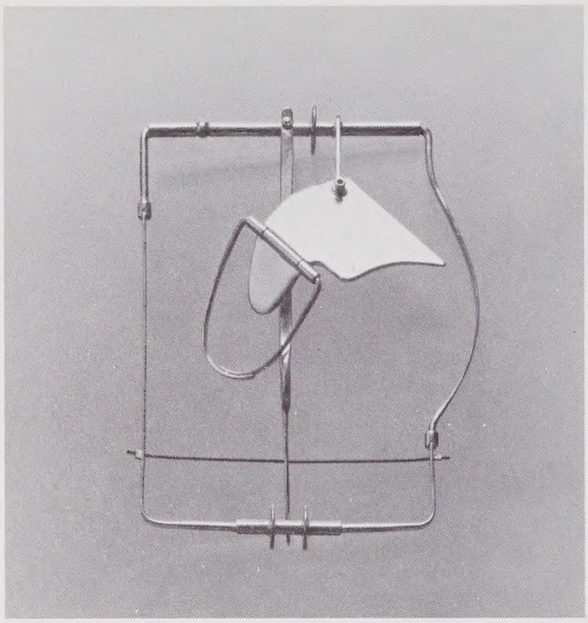
In 1967, the Philadelphia Council of Professional Craftsmen (PCPC) was founded. It was comprised of a group of 30 artists affiliated with the faculties of Philadelphia art colleges and universities, as well as several independent studio artists. As a founding member, I served as their volunteer executive director for seven years. During this time, exhibitions, panels and lectures were organized, including the first David Watkins/Wendy Ramshaw exhibition to be held in America. There was no NEA grant money for crafts, no funding and no courses in the history of modern crafts. When Philadelphia College of Art was unable to locate a lecturer for their proposed craft history course in 1973, it was requested that I organize my notes, stop lecturing on the streets of Philadelphia and accept the position.

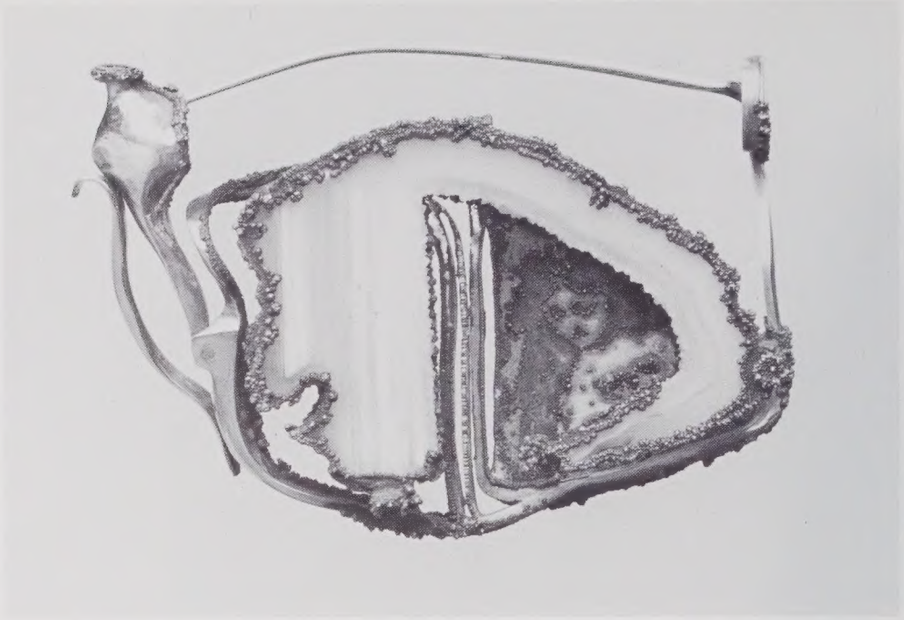
With continuous independent research, this activity dominated my existence and brought me in contact with artists everywhere. In 1974, as the PCPC's goals began to be met (and due to the lack of regional exhibitions), the Helen Drutt Gallery was born. It was an attempt to provide the public with a forum for the crafts and a center for study. These activities naturally brought me into contact with significant works that had received little public response in terms of collecting, and I began to acquire them in order to "hold" history.

This collection reflects both the activities that were essentially part of my life in Philadelphia and the travel that the increasing interest in modern crafts ultimately demanded. The first acquisitions were Skoogfors, Lechtzin and Paley, who were in the U.S. When Claus Bury came here to lecture during the fall of 1973, he was my house guest. I had just made the decision to open the gallery, and my first acquisition was a gold and acrylic ring by Bury—a union of materials unique in this country. My knowledge of Bury's work came through Skoogfors and through the catalog of the "Dürer Five Hundredth Anniversary Exhibition" held in Nurenburg, Germany in 1970. The quest had begun. Acquisitions of the work of Gary Griffin, J. Fred Woell and Eleanor Moty began in the 60s and continued into the 70s. Purchases from abroad continued with a Gerhard Rothman bracelet and a David Watkins neckpiece. This pattern continued through the 80s and began to include works by European artists.

"Modern Jewelry 1964–1984," as a collection, visually documents the dialogue that centered in Philadelphia during the last two decades. As a visual journey that closely parallels the professional life of its collector, it is a record of the taste of one's time, and I hope it will assist in the development of late 20th-century art.

—Helen Williams Drutt





Above left: Deganit Schocken, *Brooch*, silver, gold, nylon, 7.9 x 5 cm, 1982; **Above right:** Eleanor Moty, *"Cameo" Brooch*, silver, 14k gold, copper, agate, 6.8 x 10.3 cm, 1970. Photos: Norrine Betjemann

choosing baroque or informally cut stones over the regular or more formal ones.

Plastics are well suited to smooth, subtly manipulated surfaces and thus are interesting in terms of textural exploration. However, they also raise an interesting ideological issue. Plastics are manmade substances and their integrity lies in their coming into existence at all. They are not used by artists who are seriously studying and developing a vocabulary from nature. But no discussion lasts forever, and in the rapidly changing art world of the 20th century, the urgency of the discussion on nature inevitably diminishes. Various individuals become interested in exploring new possibilities and in the late 60s plastics became more regularly used for their variety, textural and otherwise, and their own singular characteristics.

Within both the organic and the nonorganic approaches to materials and design, the seemingly limitless possibilities of textures are explored. From the rough organic intricacy of Lechtzin's electroforming to the polished undulations of Paley's inlaid stones, from the bold eclectic surfaces of Fred Woell's mixed-media constructions to the more subtle but equally mixed surfaces of Toni Goessler-Snyder's informal geometry, the discussion of texture carries on into increasingly diverse and rarified realms. Materials are sandblasted, etched, cast, carved, polished, painted and assembled to create surfaces that may or may not speak to the issue of surfaces and texture at all. Divergent ideologies are formed out of practical and technical developments. A complement of dimensions is added to the formal dialogue of design esthetics.

Color

As texture, so, too, is color a formal device of major importance and its use and development also illustrate the discursive quality of exploration in this collection of jewelry. Initially, color is subdued and minimal because of its derivation from the few metals and minerals that are used to create the jewelry. Gold is used for its own sake and its color range is not wide. Silver is used in like manner. Set stones are often closely keyed in color to the basic metal in order to enhance the natural effect of the metal. None of this is a necessary result of using these particular materials, but it develops out of the nature ideology in which truth to materials becomes linked to purity and the use of color is limited in a pure and refined manner. Nature, however, is not monochromatic and even in the early stage of this discussion there are some color contrasts being used.

Color comes into its own when the pictorial approach in jewelry has developed into a fully coherent direction. Bruce Metcalf and William Harper both paint jewelry into being, Harper by means of enamels, Metcalf by means of assembling a mixture of materials. With essentially a designer's approach, these artists use color to separate visual elements from one another in order to clarify the imagery.

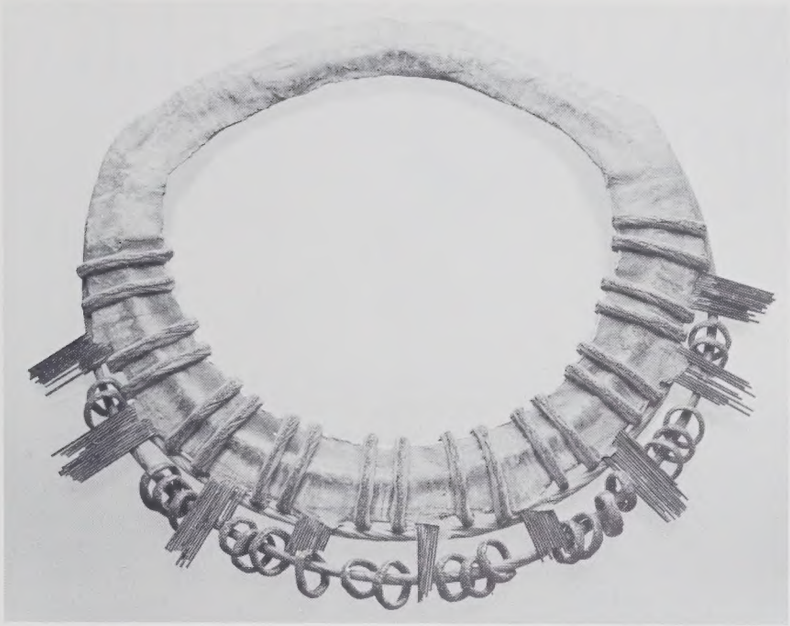
Works which make use of plastics often are involved in a discussion of color both for its own sake and as an enhancement of form. The wide range of possibilities within the material itself allows for the muted softness found in David Watkins's work and the strong contrasts in Hans Appenzeller's. But the fully developed dialogue on color comes with the most recent work in the collection. And this work takes its cues from painting. Esther Knobel's necklaces are painted in the bright colors of graffiti; Lam de Wolf's colored fabric is painted from an expressionist's palette; Debra Rapoport constructs painterly assemblages; Emmy van Leersum is a minimalist with painted steel.

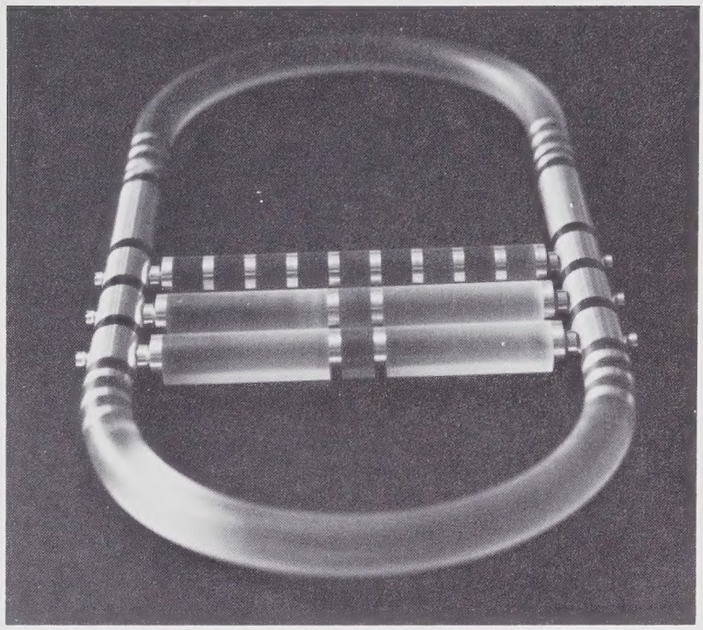
Color speaks to material and to intent, it enhances form and sharpens texture, it is used for its own sake and it looks to history. While there has been great variety within this dialogue, there has also been a general tendency to develop a bold hand with color. This comes with the tendency to celebrate a machine esthetic.

Formal concerns are intimately linked with the process of making, but the ideology behind the making has fluctuated rapidly over the past 20 years. That formal concerns and ideology frequently interact can be seen in the complex relationships of texture to plastics, to nature, to color. Each aspect is both formal and ideological, depending on the intent of the artist, the essence of material reality and the feeling of the times. Machine versus hand is an essential part of these issues. What begins to show in some of the most recent pieces collected by Helen Drutt is a clean, machined quality that is the antithesis of the organic approach. This is an extreme swing in sensibility, although not an all-encompassing one. At the same time, some of the most radical recent ideas on the nature of jewelry are manifested in pieces that make no overtures to the look of machines, the feel of machines or the work of machines. The machine esthetic has been developing on the heels of the organic esthetic and it has also been wandering through a series of digressions and diversions. Recent work by David Tisdale, Emmy van Leersum, Paul Derrez and Susan Hamlet has left the idea of organic growth behind. Recent work by Marta Breis, Hilary Brown, Debra Rapoport and Lam de Wolf has not. The leave-taking has been half-hearted.

Function

The question of function is one of the definitive concerns of 20th-century design. It is an intimate aspect of all levels of making. On a philosphical level, its relationship to jewelry has always been fraught with problems and often with heated discussion. Jewelry, after all, is not necessary to the physical welfare of the individual or collective human body. Setting aside the overworked discussion of psychologi-





Above left: Debra Rapoport, *Necklace*, papier maché, paint, paper cord, glitter, plastic, 30 x 32. 3 x 3.3 cm, 1983. Photo: Norinne Betjemann; **Above right:** David Watkins, *Necklace*, acrylic, silver

cal needs, the discussion of function in relationship to jewelry takes on an oblique cast. On the one hand it becomes an ideological discussion of the integration of body and decorations. On the other hand it becomes a pragmatic discussion of the relationship of body and object, an ergonomics of decoration.

How a piece of jewelry wears or sits on the body is the concern of ergonomics. The curve of the neck or wrist or waist determines the basic form of the decorative piece made for it. The mobility of the torso requires that the jewelry also have some mobility. Rings for fingers need to allow the hand to function in a normal manner. Such practical concerns about design function sound quaint today when artists are exploring jewelry forms that ignore the comfort or mobility of the body. But there was a time, the 60s and much of the 70s, when practical problems were determining factors in design.

New jewelry objects, those from the late 70s into the 80s, demand full attention for themselves. The relationship of the body to the object either is seen in terms of dichotomy rather than in reciprocity or is seen as only marginally important. Function is discussed from the point of view of the object rather than from the point of view of the wearer. The object functions intellectually.

Much recent dialogue on art is the dialogue by art about itself. The work functions on an intellectual level resulting in an ideological discussion, which in jewelry manifests itself through a pictorial mode. *Don't Go Out at Night, Self Portrait with Structure and Straight Jacket, Training Fetish* and *Love Object* are titles of brooches by Bruce Metcalf and Fred Woell. Metcalf's pieces are images on a nearly flat surface that are best displayed by finding a body to ride on. Woell's work is more sculptural, but it does the same. These are minimally dialogues on function. They are primarily dialogues on imagery. These pieces are self-contained artworks that happen also to be wearable. The idea of the piece functioning in relation to a body has shifted into the idea of the piece functioning in relation to itself. The object is now considered entirely as iconographic, and it succeeds or fails on its merits as a painting or a sculpture. This represents an important ideological shift.

The discussion of ergonomics versus independent art object is more subtle than that concerning formal problems. Even when jewelry becomes an independent art object, it is still made to be worn and this necessary relationship to the body has various arenas of unease. Whether a piece should be volumetric or flat, echoing the body or using the body as a display surface is an essential dichotomy that is frequently made to find middle ground. A three-dimensional piece when worn against a body is a sculpture pushed against a wall. A wall may be the best place for a painting (a flat brooch), but a body is not, for the most part, a wall. The piece may then seek for a middle between the extremes and what is essentially bas-relief sculpture frequently results. Or the piece may speak directly to the volume of the body by wrapping around it and mimicking its contours. Practicality is not the issue here; ideology is. A discussion of line and volume, or draughtsmanship as it pertains to mass, ensues.

Draughtmanship around a body is draughtsmanship in space, three-dimensional drawing that relies on a living armature for successful display. It is an extreme position and it is most clearly reached by the work of Lam de Wolf and Caroline Broadhead. Their jewelry, dating from 1983, is among the most recent work in the Helen Drutt collection. These large-scale pieces are bold, non-ergonomic and ephemeral. Their function is, indeed, intimately related to the body for they need a body in order to be complete. But the comfort and the ability of the body to function with ease is no longer an issue. The body has become much more than just a free ride for the object and much more than just a thing to be decorated. The traditional idea that jewelry serves the body has been reversed. The body has been made to serve the jewelry. The art object in terms of the body prevails. But, in a neat double twist, the body in terms of the mind claims the ultimate victory. The mind conceives the intitial jewel of adornment as an art statement and transforms it into a ritual garment, which is inextricably bound to a body, which in turn gives it its reason for being. In essence, the function of jewelry has been reversed and redefined.

In the broadest sense, jewelry is a collection of precious things very dear to one. An intense and discursive analysis has been brought to bear on the subject in the past 20 years. The wandering quality of the discussion does not mean that no conclusions have been reached or that new directions and sensibilities have not been found. But there has not been a steadily unfolding discussion, with premises agreed upon, developing into a new situation. For every direction of inquiry, there has been a counter direction and for every counter direction, there has been an oblique one. The result is a plurality; a plurality of styles, of ideologies and of definitions. Jewelry is still arguing.

"Modern Jewelry, 1964–1984: Collection of Helen Williams Drutt" was exhibited at the Montreal Museum of Decorative Arts, November 15, 1984–February 3, 1985. The exhibit will travel to the Honolulu Academy of Art, late January, 1986 and the Cleveland Institute, September, 1986. Further travel schedule in preparation for the United States and abroad. A catalog of the exhibit is also in preparation.

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ART, ARTIFACT AND THE JEWELRY OF RAMONA SOLBERG

by Cindy Cetlin

In the three years since her retirement from 31 years of teaching, Ramona Solberg has had three exhibitions of her jewelry, participated in several invitational shows, given jewelry workshops, moved her household and studio and taken seven tour groups to China, India, Mexico and South America. At the first attempt to contact her for this article, she was away in India and Borneo, and a couple months later, she was off again to the Mediterranean. Ramona Solberg is a person who communicates warmth and enthusiasm, whether concerning her work, her friends and colleagues, her teaching or her love of travel. Although she would acknowledge that she, like other academic artists, has been fortunate, to create work without confronting the artistic compromises caused by the marketplace, Solberg's success derives from an inner strength that transcends academia.

Solberg started making jewelry in 1939 when she was a student at the University of Washington. After a five-year hiatus, serving in the Women's Army Corps and a year of study at the University of Michoacan in Mexico, she returned to the University of Washington, where she studied with Ruth Penington and received her BA in 1951. During 1953 and 1954, Solberg studied jewelry at the Statens Kunst og Handverk Skole in Norway, and in 1957 received her MFA, also from the University of Washington.

Many of her teachers, both in Norway and the United States, took a traditional approach, feeling that jewelry should be made only from precious materials. Solberg, easily overcame that prejudice during her first teaching position in the Seattle Public Schools. She encouraged her students to make jewelry using available, inexpensive materials, and soon she herself felt liberated, "using found objects and stringing beads with the best of them." This was the beginning for Solberg of a style that dominates her work: nearly every piece contains a found object or beads that are often quite old. These objects are combined with cast and fabricated metal components, which are occasionally electroformed or enameled and often patinated. Solberg is a true collector, confessing to "love junk stores, antique shops, street fairs and bazaars," and while she is sophisticated and selective in her choices, she has "a terrible time passing up any sort of game pieces, old compasses or miniature tools," pieces with a past or an intrinsic symbolism.

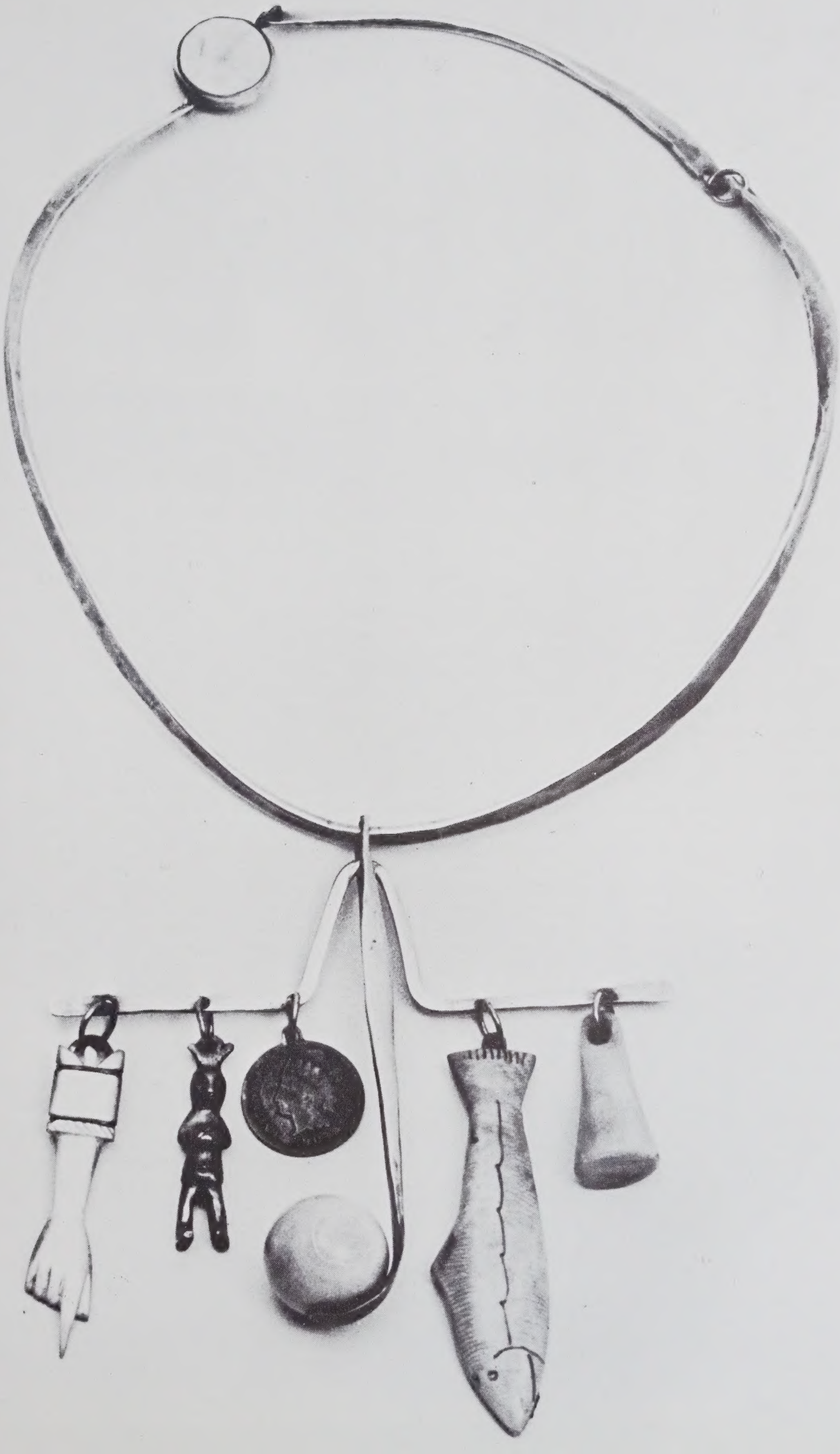
In writing about the recent craft revival in this country, Barbara Rose posed the dilemma, how can we speak of a "craft revival" when there is very little craft tradition to revive?* Solberg, however, embraces this situation. Acknowledging that there is little indigenous jewelry tradition in the United States, with the exception of the Native American work, she maintains that she is left free to experiment without "cultural hand-ups." While one can plainly see cultural influences in Solberg's jewelry—her work reveals a deep appreciation of both folk art and primitive cultures—she has selected her resources thoughfully.

Mudra, the name of the hand positions of the Buddha, is the title of a necklace that conveys a sense of reverential humanity. Strands of African clay beads of varying and slightly irregular shape, of pale earth colors accentuated with deep browns and grays, are loosely intertwined and strung with ivory beads into a rich coil. Small, cast bronze and silver hands, of a single, stylized design, are suspended from the strands; some of these hands have a warm, reddish-brown patina, others are the natural silver or bronze color. Hands hang from the necklace, lie across the interwoven strands or are half-covered by them; some reveal an open, oval palm with deeply incised lines, some show the back of the hand with its stylized markings. Reminiscent of African and ancient jewelry, two darkly patinated, tapered structures of silver extend from a simple hook-and-eye clasp and support the beaded strands. *Mudra* contains many levels of meaning: the ancient rituals of a rich culture, whose symbols are lost to us; the universal hand, suggesting prayer, the Buddha and the many races of man; a meditative quality created by quiet colors, subtle textures and long, gentle curves; and the beads, which could be prayer beads.

The necklace is Solberg's chosen form of jewelry—it is the one form, enclosed or circular, which is repeated again and again in her oeuvre. Abounding with symbols and cultural artifacts, the necklaces are contemporary talismans, carrying contemporary myths. One necklace, made in 1968, suspends from a simple structure several small objects: a bit of Alaskan ivory, a stylized silver fish, a small totemic figure, a pointing hand and an old coin bearing the image of an Indian. Its title, *Shaman's Necklace*, refers to the magical medicine man of the Northwest Indian. Another necklace, strung with ancient beads and bearing a pre-Columbian textile fragment, which is sealed within acrylic, is titled *Craftsman's Amulet*. Titles such as these emphasize Solberg's sense of history and her emotional connection with the primitive artist. Unlike today, the primitive artist was an integral part of his community; he was even endowed with great power. The shaman's fetishes were feared and treasured; amulets and talismans could bear great potency. There was nothing frivolous or vain, or even pretty, about many of these objects; they contained the magic, superstition and the myth that for the primitive explained the terror and vulnerability of his life.

For many years, Solberg has returned to the themes and objects that hold meaning for her. She is enthusiastic about the recent accomplishments of contemporary jewelers, yet is completely true to her own style. She writes that "seeing the work of today's jewelers, the

Shaman's Necklace, Alaskan ivory, found objects, 10 × 7", 1968



Above left: *Mudra* necklace, 1983; **Above right,** *Ampersand* pendant, silver, bronze, ivory, antique ruler, 1983. **Photo:** Jon Savelle; **Opposite page:** *Necklace,* lucite box containing handmade beads and fragment of pre-Columbian textile, 1983

current exciting designs, I often ask myself, 'why don't you do something like that?' . . . When I sit down at my workbench all those marvelous little objects and beautiful beads beckon to me and the next thing I know I'm combining a domino with an ivory bead and have forgotten all about the avant-garde jewelry."

Dominoes, old tokens and dice, miniature and antique tools, old measuring devices, worn ivory buttons—these are the artifacts of our culture. They impart a sense of age and mystery to the necklaces, suggesting past lives. Often these objects are presented with a wit that reveals the maker's enjoyment of her own game. Game pieces, a Chinese lice comb, allegorical figures and printed fragments disclosing a taste for 19th-century kitsch reveal both humor and a keen esthetic sense.

Ampersand, a neckpiece incorporating cast and fabricated elements of silver and bronze, ivory and an antique ruler, is one of these evocative works. The ruler suggests succeeding generations of craftsmen: the maker, the original user and the jeweler. For Solberg, old tools such as this have a rich meaning. She strives in her work for a "well-worn, primitive quality . . . the richness of old amber and dull silver, the color of red coral, the tinkle of bells or coins that hit against each other. . . ." The elements of her own making combine harmoniously with the found objects, which have been, in many cases, well-used. The necklaces are sturdy; they are meant to be worn and touched and to conform easily to the body. This jewelry does not have the perfect, highly refined surface or the spare design of much contemporary work; it is richly textured and patinated. It is timeless. Solberg confesses that these necklaces are initially, secretly, made for herself, which accounts for their consistently personal iconography. The directness and simplicity of these pieces of jewelry are qualities integral to Solberg's own personality.

Beads—metal, clay, stone or glass—are Solberg's favorite materials and have appeared in her work for the past 35 years. In *Dinka Mauve,* a thick cascade of old, mauve, glass beads from the African Dinka tribe is suspended from fabricated silver, tubular sections set with coral and interspersed with dark, purple bands of small beads. The result is a colorful and sensuous piece, which, in its combination of the contemporary American sensibility with the ethnic antiquity, reveals Solberg's personal stamp.

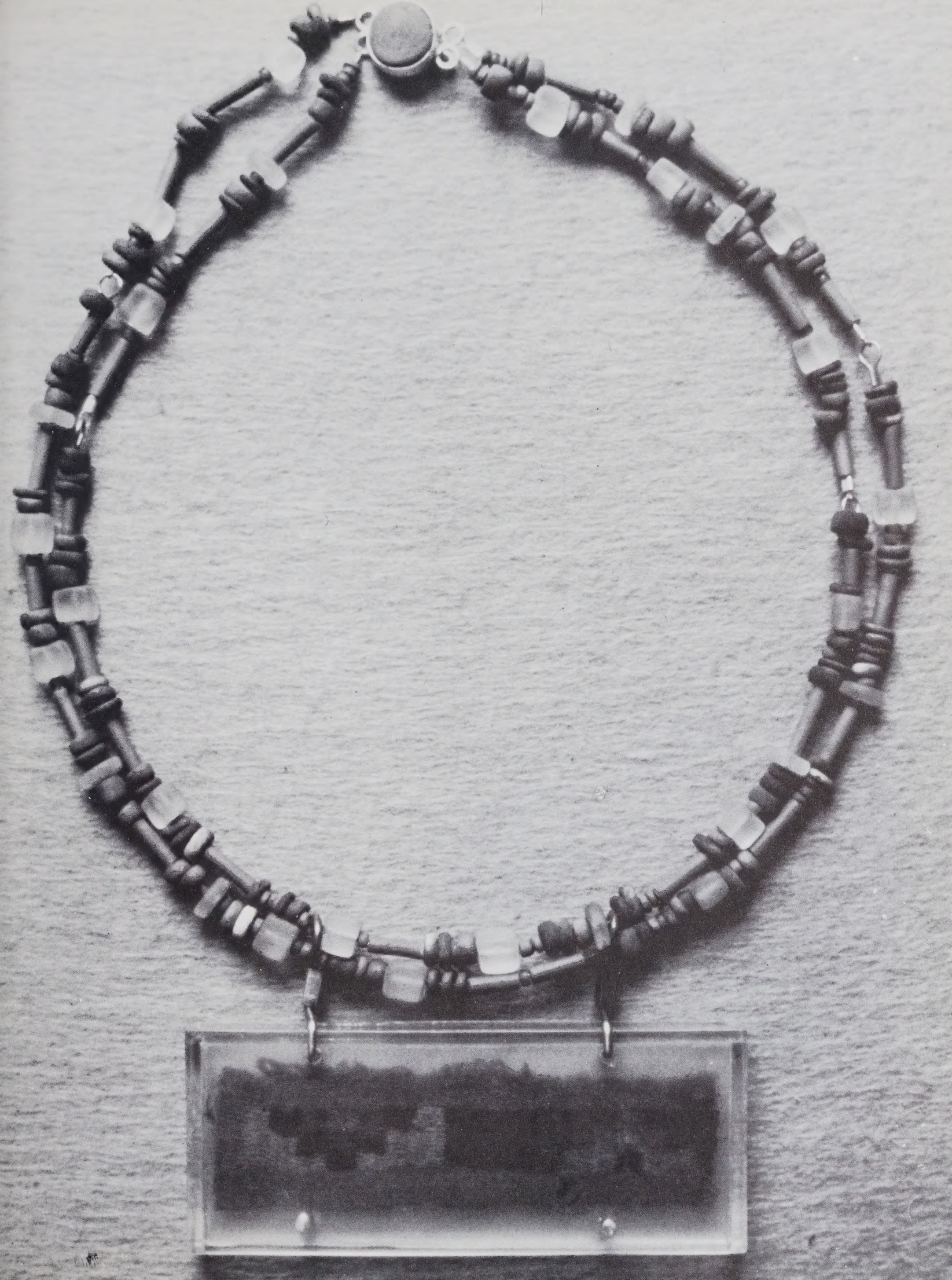
Countless objects fill jars, boxes and shelves within Solberg's studio. "I just like to look at them, I don't even have to do anything with them," she exclaims. In addition to all these bits and pieces is a fascinating collection of ethnic jewelry, gathered over the years from many countries, particularly the East, the Middle East and Africa. Solberg is drawn to jewelry that carries a certain symbolism or ritualistic meaning, such as fetishes and talismans, or ceremonial jewelry. She loves jewelry that has movement, that has the mellowed surface and patina of years of wear or that combines materials, such as shell or bone, with silver or bronze structures and fastenings.

Since retiring from a 17-year professorship at the University of Washington, Solberg has found more time for her own work and also for the extensive traveling that is such an important part of her life. Hardly the finickly, easily frightened tourist, Solberg seems to thrive on the challenge and uncertainty that typifies not tourism, but travel. When asked if she missed teaching, Solberg replied, "Not at all!" However, she loved teaching and is a rare teacher. Solberg is generous with her time and energy, and her own enjoyment of metalsmithing is contagious. While she works rather simply and directly herself, her technical experience is wide, and she encourages students to experiment, both technically and stylistically. She shares a genuine happiness in the development and success of her students, many of whom now have established careers as metalsmiths.

Solberg is an important member of the first generation of metalsmiths involved in the craft revival of the 50s and 60s, metalsmiths who re-learned, developed, reasearched and then passed on their craft to the next generation. Solberg's work, in its own way, symbolizes the craft revivals of this century. The humanity of the handmade object, and its history and process, the magic of symbols and of certain objects, ancient or universal, revive for our contemporary culture spiritual and precious qualities, which mechanization, modernization and mass production obliterate. Just as the anthropologist or historian seeks out a culture's customs, artifacts and atavisms before they disappear, just as a museum documents our past through its material culture, Solberg preserves something precious about jewelry: in her collecting, in the knowledge that she has shared generously and purposefully with her students and, most of all, in her work, which generates a magic of its own.

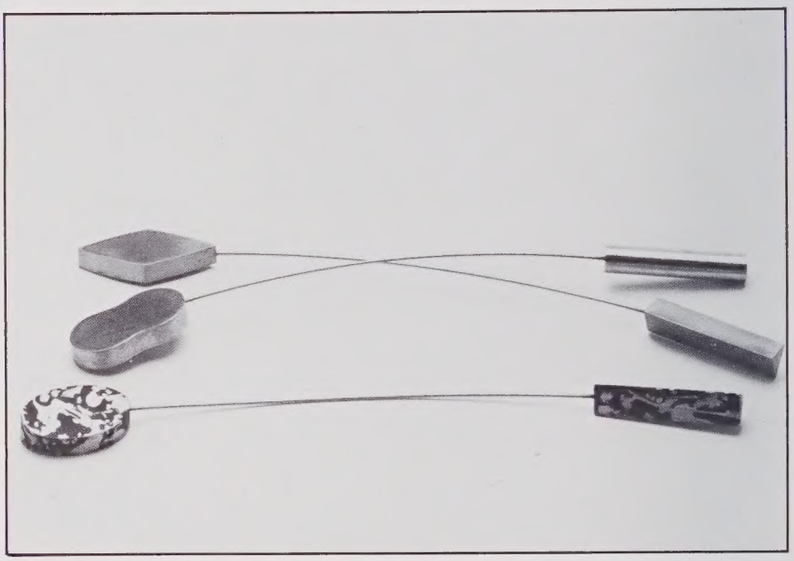
*Barbara Rose, *New York Magazine,* June 19, 1972, pp. 71-72.

Cindy Cetlin was first inspired by Ramona Solberg and her teaching at a 1980 Penland workshop. Cetlin is now a resident artist in metalsmithing at Peter's Valley and teaches jewelry and enameling at Pratt Institute.



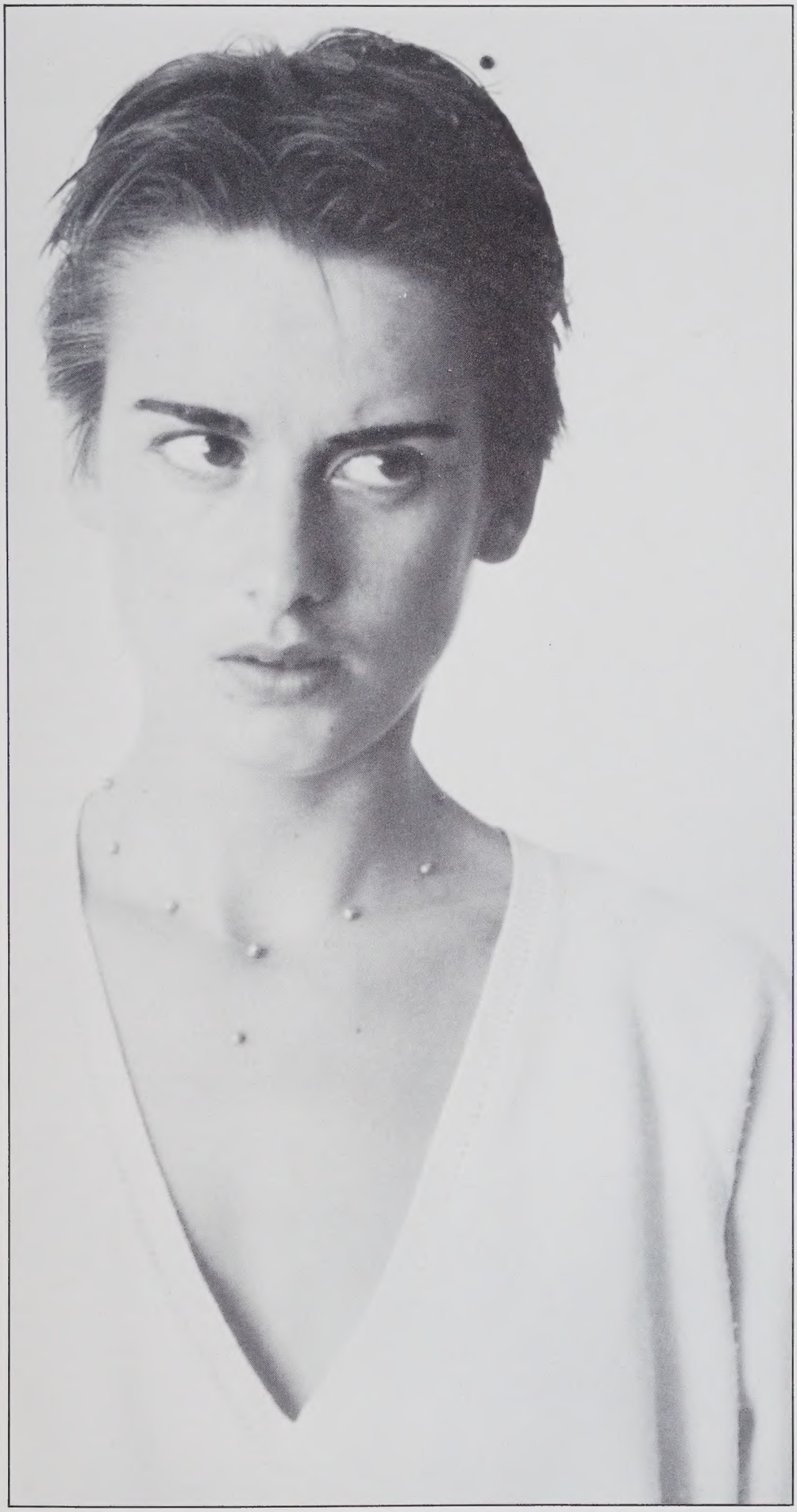
FIVE GERMAN JEWELERS

by Susan R. Ewing



Top: *Three Brooches*, silver, gold, steel needles, 1981. **Above:** *Variable Ring System*, rings can be worn together or separately, 14k gold, sterling silver, German silver, 1983

SABINE SCHEUBLE



Necklace, golden pearls on nylon fishing line, 1980

Five jewelers who chose not to follow the traditional vocational training of "master goldsmith," but rather opted to study as artists in an academic context, having completed their education, are now confronted with the reality of earning a living from their jewelry. Although each approaches this end by a different means, be it production, limited-edition, one-of-a-kind or purely conceptual work, all five primarily sell through exhibiting in a network of jewelry galleries located throughout Germany.

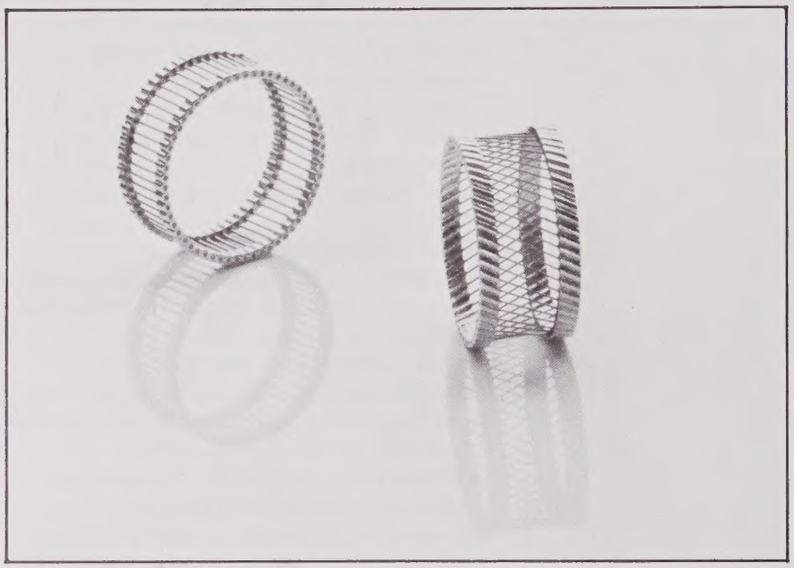
Except for Heinz Sammeck, who completed his diploma at the *Akademie der Bildenden Künste* (Art Academy) with Professor Hermann Jünger in Munich, the others of this group, including Ingrid Gossner, Wilhelm Mattar, Sabine Scheuble and a Frenchman André Ribero, all studied under Professor Reinhold Reiling at the *Fachhochschule für Gestaltung* (College of Art and Design) in Pforzheim. Though philosophically quite different from one another, both programs provide students with the opportunity for individual artistic expression and experimentation, much like their American counterparts. American schools are often criticized for creating ill-prepared "art jewelers," unable to satisfy the prerequisites of a career outside of academia, either in industry or as independent production jewelers.[1] Likewise, each of these jewelers feels to some extent inadequately prepared due to similar theoretical training. While Mattar and Scheuble both advocate the introduction of practical business courses into the art/design school curricula, Ribero and Gossner view change as unwarranted. Gossner explains, "It is possible to do it on one's own . . . you should use school to look into yourself, not to make money . . . to find the limits."

SCHEUBLE. Like Ribero, Sabine Scheuble elected to pursue her career in Pforzheim, partly because of the convenient access to tools and supplies, but also because this city allows her the opportunity to sell prototype designs to the commercial manufacturers. Since in Pforzheim it is virtually impossible for individual jewelry designers to retail their own pieces, both she and Ribero market their work to galleries and to some retail stores outside of Pforzheim.

Scheuble views herself primarily as a designer of practical, sensible jewelry, using mostly traditional materials: 18k gold, sterling silver, stones, with some German silver and plexiglass. Her commercial designs satisfy the industry's requirements for cast jewelry, while her handcrafted designs are elegant, three-dimensional constructed forms with varied, embellished surfaces.

MATTAR. During the past two years, Gossner has shared a studio in Cologne with Wilhelm Mattar. Their studio adjoins a small jewelry gallery which Mattar founded four

WILHELM MATTAR



Necklace, **Inset:** Rings, 1983. Photos: Partner Pictures

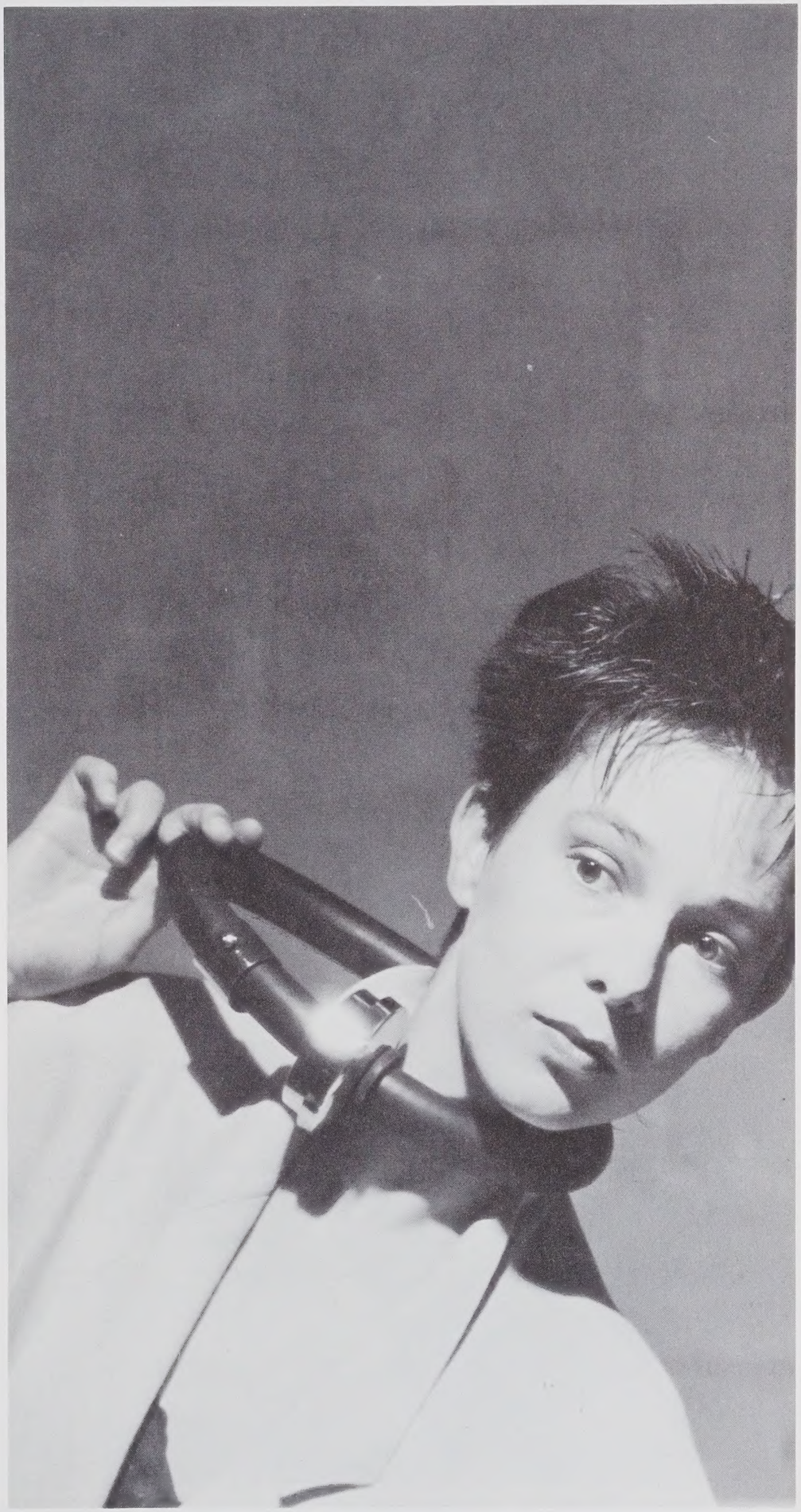
ANDRE RIBERO

years ago. Gallery Mattar typifies the response of individual art jewelry designers to the need to not only make, but also exhibit and sell their work. Mattar explains that "it is not important to have a gallery, but a forum in which to show and discuss. As a gallerist, I am a fanatic amateur—a jewelry maniac . . . but mostly I am a goldsmith." His gallery exists not only to fulfill his own and the gallery artists' marketing needs, but to educate and advance the concepts of good, innovative contemporary jewelry design to the public. He is not interested in "quick-selling" but in exhibiting work of high esthetic, technical and conceptual quality. Similarly, Munich's Cada (Annette Rössle), Gallerie Ventil (Doris Sacher and Hans Gericke) and Spectrum (Marianne Schliwinski and Jürgen Eikhoff); Berlin's Werkstatt Galerie (Rosemarie Brodhas) and Feinschmiede (Krack and Kammermerer); and Bonn's Galerie Sterntaler (Brigitta Knauth) are jewelry designers' galleries for jewelry designers.

Despite the consuming gallery demands, Wilhelm Mattar produces a substantial body of work annually, from one-of-a-kind to production jewelry of up to 80 multiples of certain designs, as well as commissioned pieces, in total, about 20 new ideas each year. Tension is a central theme, actual and visual, created by the use of wire penetrating volumes or planes of contrasting precious and nonprecious materials, expressing a subtle relationship to architecture and associated tension structures. Recently, Mattar has adopted reinforced concrete as a new material for his wire studies. Reduced from architectural to jewelry scale, the concrete is now "reinforced" with fine gold.

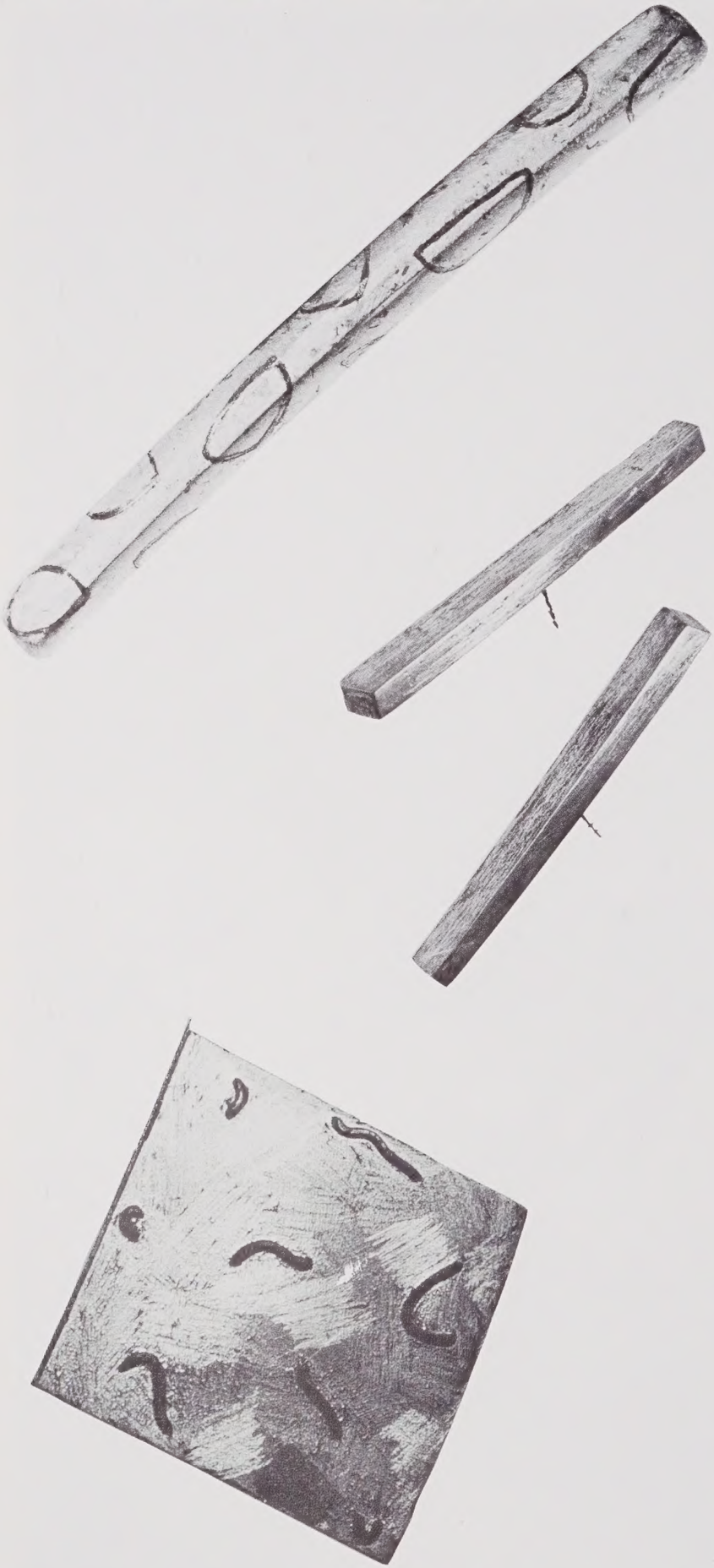
RIBERO. In 1976, André Ribero left France to come to "the only place to learn jewelry," Pforzheim. And there he has remained since, completing the nine-semester program at the College of Art and Design. He does not intend to return to France where he finds the attitudes "much too conservative and less interesting." For him, Pforzheim, the commercial jewelry center of West Germany, "provides all that I need" to make jewelry.

Ribero poetically characterizes his current work as "night and stars/black and diamonds." Prefabricated black industrial rubber washers of various dimensions provide the basic format for Ribero's rings, collars and bracelets—"jewelry to be worn in a direct relationship with the body" (he excludes brooches). Working with this rubber as a constant, Ribero explores formal concepts and endless theme variations by juxtaposing silver, gold and tube-set diamonds. Though he has produced a few hundred rubber and diamond rings, he prefers the one-of-a-kind and limited-edition designs which allow him to develop new ideas.



Collar, rubber, chromed steel, 1984. Photo: A. Blüher

HEINZ SAMMECK



Top: *Brooch*, bar of silver with "golden circles;" **Center:** *Ear Jewelry*, bars of "gaschgasch," electrum-plated; **Above:** *Ear Jewelry or Brooch*, plane with "gaschgasch," electrum-plated

SAMMECK. As Jünger's student, Heinz Sammeck experienced three years of "free study," that is, he alone determined the technical, esthetic and conceptual directions which his work would explore. Three-and-a-half years of prior benchwork experience with a master goldsmith in Cologne provided the technical rudiments. Working directly in the ancient alloy, electrum, and "gasch-gasch," a lightweight alloy he developed, Sammeck creates sensual, expressionistic compositions with softened edges and sensitively textured surfaces. When stones are used, they are natural and transparent, such as aquamarines and diamonds, and they often exist as forms by themselves. Remaining in Munich, Sammeck maintains his student-artist idealism—seeking that "spirit between jewelry and the body," as he describes it. His jewelry is spontaneous, timeless and deeply personal, though now he uses more gold and has explored serial production in order to sell more. However, he does not accept commissions and he has not entered a competition since 1978 (because he feels German competitions are too closely related to industry).

GOSSNER. With collaborative input from industrial designer Reinhard Paulus, Ingrid Gossner's complex, layered, abstract images combine and juxtapose traditional goldsmithing and industrial techniques, "ready-mades," precious metals, plastics and jewels into "colorful pictures telling stories . . . myths and secrets." Gossner views all of her work as experimental; therefore, everything she produces is one-of-a-kind. The materials she selects esthetically support the pieces and she considers them irrelevant to the salability of her jewelry. To achieve the clean, pure forms on which she constructs her "collages," Grossner employs industrial techniques and machines, especially the lathe.

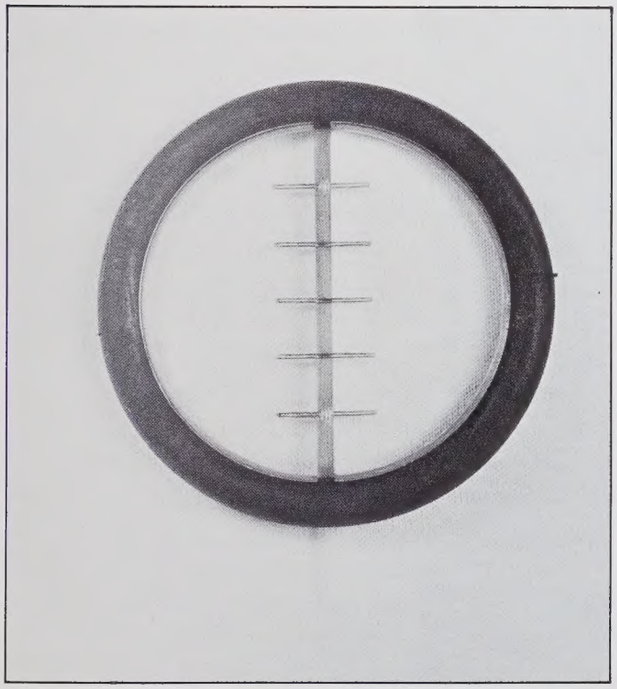
Are they earning a living with their jewelry—jewelry of rubber, concrete, "gaschgasch" and "colorful pictures telling stories"? Yes and no. Their work is selling; the galleries remain open, but their responses are the same, "it is not enough." Cash flow is a critical problem, though not insurmountable—all five artists' profits are increasing annually. Their obvious conviction to maintain artistic integrity and communication between individual artists and galleries indicates that indeed they are succeeding. Perhaps in the United States our criticisms of our jewelry education are warranted, but probably a lack of commitment to our choices is more likely the problem.

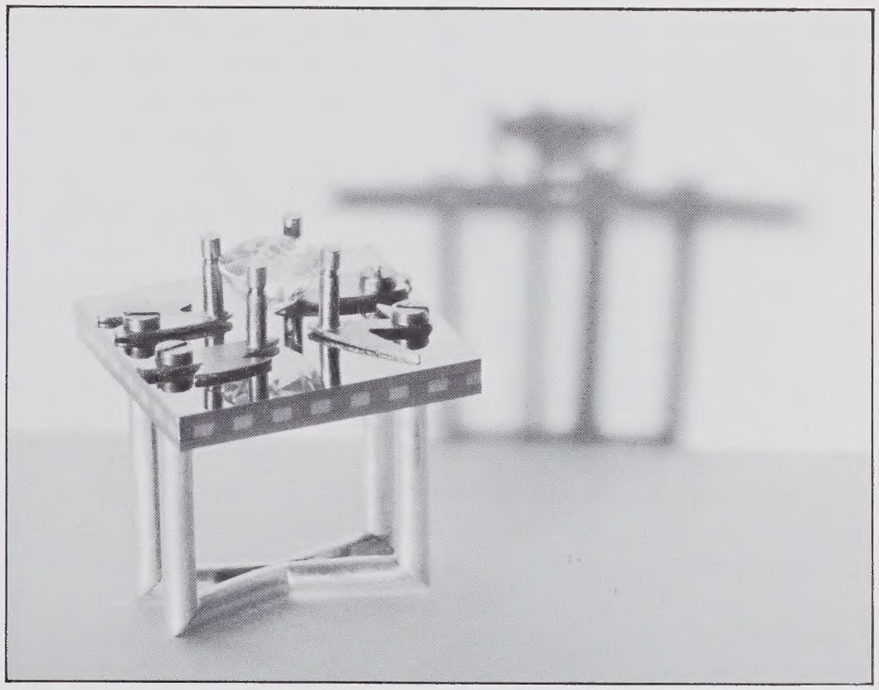
Notes

1. Baldridge, Mark, "Editorial," *Metalsmith*, vol. 2, n. 4, Fall, 1982, p.3.

Susan R. Ewing teaches jewelry design and metalsmithing at Miami University in Oxford, Ohio and lived in Europe during the past academic year.

INGRID GOSSNER





Top: *Scoubidou* brooch/hairpin, gold, sterling silver, steel-plated German silver, nylon, pearl, 1982. Photo: KULT; **Above left:** *Brooch*, plexiglass, steel, gum rubber, 1980. Photo: Partner Pictures; **Above right:** *KULT II* ring, gold, sterling silver, steel, gem of choice, 1983. Photo: Partner Pictures

THE NEXT STEP

The following interview between Akiko Busch and Etienne Perret and Michael Good was held as a result of the business panel on which Perret and Good sat at the Society of North American Goldsmith's conference last June. Their subsequent conversations about business direction and self-questioning reveal important considerations for metalsmiths in all phases of independent business development.

Choices confronting the contemporary American craftsman are increasingly complex. Since the 1950s craftsmen have tended to align themselves with fine artists. Whether critically acknowledged by the fine arts community or not, the craftsman's most highly revered work has likely been one-of-a-kind pieces that have accommodated or otherwise referred to contemporary fine arts movements—from Abstract Expressionisn to neo-Expressionism. Recently, an energetic cross-exchange has emerged: both the surface and substance of the visual arts have benefitted from the rich traditions of ceramics, textiles, woodworking and metals.

Yet the rich cross-referencing with the visual arts alone does not distinguish contemporary crafts. In the last several years, the esthetics and craftsmanship of the production craftsman has enjoyed new scrutiny. Production work can no longer be dismissed on grounds of commercialism. And in the case of the craftsman who designs prototypes for industrial production, his association with industry is no longer regarded necessarily as commercial rape, but as an efficient and responsible means to make a living and allow the work to be seen, used and enjoyed by a greater public.

What all this means, then, is that the craftsman has more choices. While labels such as artist-craftsmen or designer-craftsmen do continue to be used, they have become obscured and anachronistic. Because skill, talent, technical expertise and heightened esthetic sense can manifest themselves in limited and mass-production pieces as well as one-of-a-kind, these labels do little to describe quality.

With fewer esthetic stigmas attached to these different craft approaches, the choices facing the craftsman are all the more difficult. Especially for the craftsman with an expanding business, how to continue the discoveries made in a single piece, extend a single line or entire collection can be an ongoing process that asks for continual reevaluation not only of his own work but also of his ambitions as a craftsman and human being. In this interview, Michael Good and Etienne Perret of Etienne Fine Jewelry, Camden, Maine address some of these questions. Both their pieces shown here and what they have to say make for eloquent, if at times controversial, answers.

Good and Perret established their partnership four years ago. Limited production—runs vary from one to 15 of any particular design—allows them and their employees to work on more than one piece at a time, which inturn ensures a kind of diversity. That it is a partnership adds to the diversity: Good and Perret's different approaches animate both their work and their dialogue. But one of the most frequent questions in managing a small production studio is whether to encourage or limit its growth. Once a certain size has been achieved, the market reached, decisions on whether to curb or nurture growth are made almost on a daily basis. These questions seemed a likely place to begin the discussion.

Akiko Busch: Your studio staff stays more or less constant. How is this reconciled with the less consistent demands of the market?
Etienne Perret: Demands do change from time to time, but there's never any shortage of work. The big problem is trying to live up to our commitments, getting the order out on time.
Michael Good: We never turn anything down, but people do have to be willing to go to the back of the list. And people do get the idea that they have to wait. Right now, we sell to about 200 stores, and we're going to cut down on that, but without consciously cutting anyone out.

AB: How—and why—are you cutting down on that?
MG: Well, we're going to a higher end line, from 14 to 18 karat gold. When we started we were doing silver and gold, but mostly silver. Then it was gold and we cut the silver out entirely, and now we're eliminating the 14 karat for 18. And, as the line improves, there will be more stones, which also creates a different market. The pieces will have the same integrity, but they will be more expensive.
EP: But that's one of the keys in using stones, that they're used with the same integrity of how the pieces are made.
MG: For me, that's the real direction, the next step. How do I make the metal, or the stones, do this? Once you ask these questions, you know what the next step is. It's a constant evolution.
EP: Michael and I work from the standpoint that we want to be part of the real world and we want to influence it in a big way. One of the big mistakes that many of our peers make is that they separate themselves from the rest of the world. They look at art jewelry and then at everything else out there, and we don't work that way.

It's a mistake again, to separate yourself into a crafts market. I would say that our direction now is towards a very sophisticated, wealthy group of people who can afford $200 or $600 for a pair of earrings. But the best jewelers, as far as I'm concerned, are not the craftspeople by any means. The best jewelers have been working for years for the best jewelry houses. Bulgari has been turning out for years far superior jewelry than any you'll find in an American craft shop. It goes far beyond in both its technical aspects and its esthetics, in its understanding of the meaning of jewelry, which I think the craft movement is really trying to deny now.
AB: What are these elements that define this meaning of jewelry?
EP: The idea of decorating yourself, to showing status, to having a piece that means something emotionally, like an amulet. The craft movement has really tried to deny the essence of what jewelry is, and so they've had a very hard time selling it to people. The message is that you should like dull copper as much as you like shiny gold. Well, there's something that reaches not only people, but animals, about shiny things. People have really over intellectualized jewelry.
AB: So your decision to go to 18 karat, then, is based on this—that using higher quality, or more precious, materials, brings you, and the person wearing the piece, closer to the essence of what jewelry is?
MG: I think there are other things involved too. People will scream about this, but there is a real class issue involved. The people who can really afford jewelry are in a minority. There will always be a movement to make jewelry affordable to more people, but when you use less precious materials, you start getting away from the real meaning of it. You just can't take away the platinum, or the precious stones . . . although you can still use those and make a horrible piece. There are all sorts of ways to fake it.
AB: But there is a whole contemporary movement, or esthetic, of using nonprecious materials that you seem to be dismissing.
EP: But there's something special about gold. It last; it wears well; you feel comfortable with it.
MG: That's very much the heart of the matter. Look around at what people wear at a Society of North American Goldsmith's conference. It's real interesting. They'll wear one of two things: either their own jewelry, or, if they're wearing something made by someone else, it will be the simplest thing that person makes. There will always be this attempt to take things further, but look at what people buy and what they settle for. I think that's an immensely difficult thing for a lot of "art craftsmen," for lack of a better term, to understand.

Which is not to say these other things shouldn't be done. Try a thousand different things, try new materials, but don't do it because you're trying to show that jewelry is more than it is. Do it because you want to play, or it's fun, or you want to make this little piece of art. But then don't turn around and say it's fine jewelry, because that's another ballgame.
AB: So you don't distinguish between art jewelry and any other kind?
MG: There's good art and bad art; good production and poor production; good artisans and not so good artisans. If you make art, then you find out from the world whether it's art. You don't make your decision and say you're an artist and go into your cubbyhole. You say, "Well, I'll do this, and we'll see. Whether we're artists or not is for the future to tell."
EP: My feeling also is that very few of these craftsmen pursue the art world or try to be judged by it.
MG: It's not necessarily bad art, but if you're putting yourself on the line and saying I'm an artist . . . I feel awkward and uncomfortable approaching things that way. It's an extraordinarily arrogant thing to say. Maybe what I do will change people's lives, but it's for the larger audience to say.

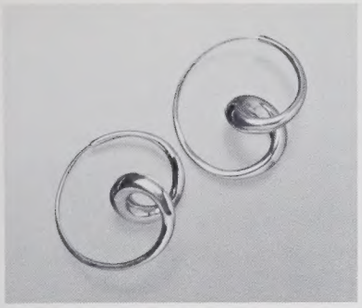
If you have to define it, then the craftsman is someone who is skilled in making the technical. And the artist is someone who is making—or trying to make—a statement, hopefully a universal principle. So an artist can make something, and have few or no skills, and a craftsman can make something skillfully which is nevertheless useless, or ugly, or whatever. Maybe the confusion lies in defining anyone with a paintbrush and canvas as an artist and anyone with a hammer, or loom, as a craftsman.
EP: An offshoot of this, I think, is to put your work out to be judged by the public. One way we do this is in advertising—we spend a tremendous amount on advertising. And people judge us by whether they order or not.

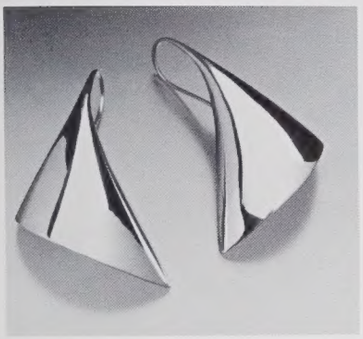
Lately, we've started advertising in *Interview* magazine. We put in a photograph of a pair of stockings I'd designed, with diamonds running up the back of the leg. And the response has been incredible. Newspapers, radio, tv stations all over the world are calling us, wanting to know what this is all about, a pair of stockings for $25,000.

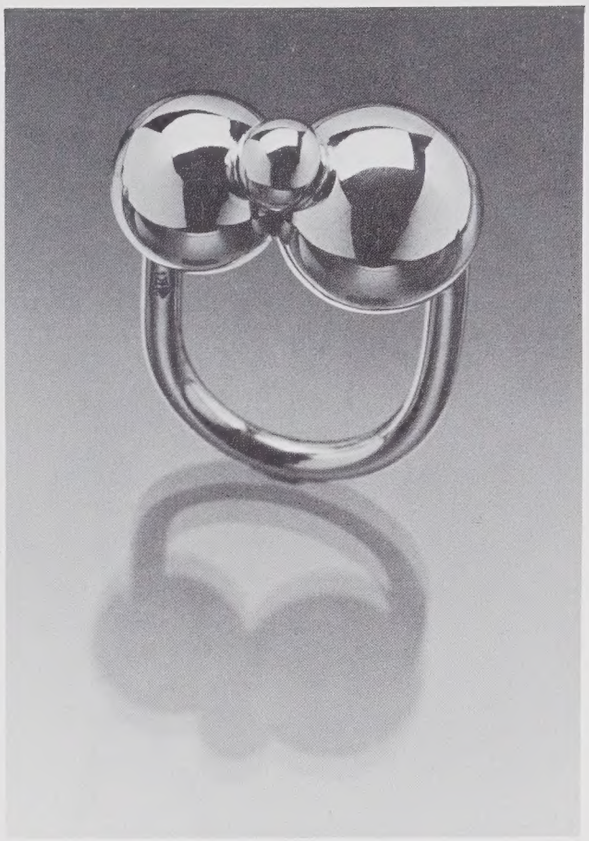
So basically, it was this idea, working with a visual concept of diamonds on the back of a woman's legs. That was the exciting part. After that, it was all work to make it happen. For me the idea is the important part. After that, you work on it, you refine it.

But for me, the craftsmanship has to be taken for granted. It doesn't even count. If you don't have it, you're not worth anything. The technical part for me is like practicing the piano, sweeping the floor.
MG: Well, I'm not saying there's any great ecstacy in it for me, but I enjoy doing it.
AB: The 25-grand stockings seem to me to be almost pure concept. It sounds as though Etienne is saying concept is the exciting part, whereas for you, it's development.
MG: Well there are some technical things to be worked out in the stockings too. The setting has to be thought out. You have to design it so it really stays on the stocking. For one, the technical part is as important as the concept. There's no question that making the prototype is the most exciting part. That's the heart of it.
AB: But afterwards, you have the process of production which is what becomes so tedious for most people.
MG: The more you do something, the better you get at it. It's that simple. The concept of this one-of-a-kind piece, so much of the time, is this ego trip. You want to be able to say, I made this one piece, and it's the only one in existence, and it's unique. And as far as I'm concerned, that's one of the most limiting things you can do.

But I can understand why Americans put such immense reliance on that. In art schools, students get the idea that you have to make these special one-of-a-kind things even before you understand what you want to say in the first place. And there was a point in that, when it was getting people back to working in the crafts . . . 20 years ago, or whatever, it was very important because it gave







Top left: Michael Good, *Triple-Loop Earrings;* **Above left:** Michael Good, *Fans;* **Above:** Michael Good, *Triple-Loop Bracelet;* **Right:** Etienne, *Ring*

people an alternative. Suddenly there was this green light, and it was OK to pursue life in this way.

Well, for me, the first thing I found with this green light, is that it opened up this enormous world of possibilities. I found out that what I was doing was not all that unique and that there have been a lot of very fine craftsmen around all along.

AB: But how does production allow you to explore all these possibilities?

MG: It's the way the Japanese concentrate, which is repetition. But the more and more you do something, or every time you do it, it's not quite the same. It grows and expands. You get better; you understand it more. A kind of meditation is involved. An internal revolution takes place. I don't say that that sense is always there. But it can be.

AB: Are you tempted to go off track, to try different things? Are those temptations important to finding new ideas?

MG: No, not really. And I confess that the last time I was working that way was just before I started working with Etienne. My work then was very experimental, a bit of this and a bit of that. And the parts were great, but the whole was really kind of horrendous. I was in so many different places at once. I would start something, and see what I could do with it, and go off . . . But it was immensely fun and one of the most important personal times in my life. I just loved it. But, nonetheless, the work was very scattered, without much consistency.

I'm not saying you don't discover some interesting things when you do work this way. But really, it's a kind of narcissism. And as far as I'm concerned, its a constant battle to stay away from that, to ask the real questions about what you really need to know. What am I doing here? Why am I doing this stuff?

What's very difficult for people, and certainly very difficult for me, is that when you lose that kind of inventive energy is when you begin to ask the real questions. Then the fun you were having, sitting at the bench, giving vent to your imagination, the sense of play, it all disappears. And it's replaced by a terribly difficult time. You begin to ask yourself, what am I really doing here? You want to know more about the world. You looked around and thought you were discovering things, and you find you were really wasting a lot of time, that it was play.

AB: And how do you come through that period?

MG: I really don't know. It never really ends. It's a constant battle to bring yourself down.

AB: But there's a kind of irony involved here. You would think that once you begin to ask the serious and difficult questions, that would be when the inventiveness starts.

MG: But that's another kind of inventiveness. It's not the kind of fun you're having at the bench. People in this society place such an importance on that. You get completely obsessed with yourself and your work, and people call that invention. I found out it wasn't invention at all. It was fantasizing, and playing. It was self-absorption. It's not anything essential. And you may be way off-track. If you really want to see if someone has anything to say, look at their body of work. When they're 60 or 70. Then it becomes evident if they're asking questions . . . or playing.

AB: Then as to your body of work, what do you envision for yourself in the future?

EP: I'd like to see an overall look that people associate with our work, though not necessarily with any one person, an overall quality or style, like what's associated with Bulgari. And the key in this is finding that niche between what you want to say and what other people will listen to.

MG: There are a lot of directions we could head in. Growth is a constant decision for me. I think I'd like to see a tooling workshop. And sometimes I consider going into mass production. It's exciting because I think I could do it and keep the same integrity in the pieces. It's all right there to do. But to do that, I'd have to put aside some of the new designs I want to work on.

Right now, we're going high end and keeping it small; it's a chamber music set-up rather than a symphony. But all these things are flexible. You can always change your mind. You always have to ask yourself what you want to do, what you want your contribution to be . . . if you go off on a tangent, something, else will suffer. If you don't, and you stick to one thing, you just keep adding to the list of designs you can work on later. I have a list that would take 15 years to finish.

It's not marketing, or planning so much, but just constantly asking yourself what you're doing. And you don't diverge from that. Our decision to use high-end materials was based on where our work was leading, rather than marketing. Sure, there'll be a small debt area during the year of transition. And our bookkeeper is skeptical. But there won't be any difference in the level of production. The more successful you are, the more clients expect from you. There's a pressure to produce. The decision isn't made in a vacuum.

Susan Kingsley, *Floating Variations Hung-up in a Structure,* copper, sterling, acrylic lacquer and patina, 12 × 7 × 3", 1982. The five "floating variations" here are die-formed pins, each slightly different, which detach from a wall-hung "structure"

HYDRAULIC DIE FORMING FOR THE ARTIST/METALSMITH

Illustrations by Susan Kingsley and Robin Casady
Photographs by Lee Hocker

by Susan Kingsley

Hydraulic die forming is a process which hasn't received a lot of press. Perhaps its usefulness seems limited to mass production, and it sounds as if you need to divert rivers to do it. This article is intended to clear up a few misconceptions as well as to present some new information.

The die-forming process has many applications in addition to "production" in the usual sense, many of which could be useful to an artist/metalsmith. The dies you make become tools for creating unique pieces, but it is unlikely that the design or intention of your work will become overpowered by the look of a "technique." A homemade hydraulic press, using a 20-ton jack, can be put together fairly easily (and inexpensively), and your neighbors won't even know.

I began working with die forming in 1978, shortly after the publication of Marc Paisin's article in *Goldsmiths Journal* (Volume III, Number 6, December 1977), which described the process. Robin Casady designed the bolt-together press, which is described in this article, and should also be credited with much of the research and development involving the use of a product called Flexane, which will be explained later.

My original use for die forming was the limited production of a hollow pendant in gold and silver. Later, I used a reversible conforming die to make a series of miniature bottles that had various surface designs incorporating the use of Japanese alloys, married metals and soldered inlay techniques. Most recently, I have been using die-forming techniques to make elements for use both in jewelry and sculpture. In addition to forming individual small shapes, I often use multiple images for repetition in a single piece and use a die to form very small parts that would be difficult to form otherwise.

Instead of discussing the use of die forming for "production," I would like to suggest the idea of multiple units. A unit could be a complete entity (a pendant, for instance) or it could be a part of a group assembled to create an object (as in a link bracelet). Multiple units can be identical or altered in some way to make "variations." In addition, a single die can be used to produce varied objects, such as mirror-image opposites, or parts with the same relief but a different outline or silhouette. The possibilities seem endless.

The use of (reversible) conforming dies to make small hollow objects was suggested by Marc Paisin in the previously mentioned article. The use of the hydraulic press and "Devcon Plastic Steel" dies for this purpose is very efficient. Their usefulness, however, is not limited to the production of hollow objects. Conforming dies allow you to stretch and push sheet metal into the third dimension. They can produce smooth, clean and complex sculptural forms that have a casual flowing quality. Soft curves and the absence of tool marks distinguish die-formed metal from *repoussage* (although surface detail could be added later by chasing). Including the time that it takes to make the dies, conforming dies can be an efficient way to form metal, if you intend to make multiples or not. In addition, you may be able to use a thinner gauge metal, cutting material costs. A 2 inch conforming die of plastic steel, as described in the example below, costs only about $7.50 to make.

Hydraulic Press Design

The hydraulic press illustrated can be put together for around $350.00. The advantages of this design are that it is inexpensive (compared to industrial models), easy to assemble and adjustable to various heights. If you can find a second-hand jack, or use scrap metal for the plates, it can probably be built for less. Most machine shops or metal-fabricating businesses can supply the steel parts you need; threaded steel rod, steel tubing, nuts, washers and steel plate. They can also do the cutting and drilling. The springs come from a hardware store, and the jack can be purchased from an automotive supply store or tool dealer.

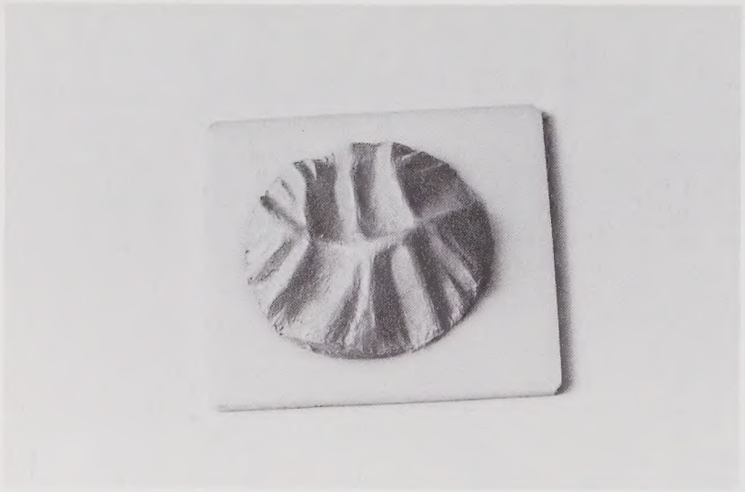
The hydraulic press works as follows: the tubing acts as a spacer between the top and bottom plates (see Diagram 1, plates A and C). They are stationary, although the distance between them can be adjusted by using different length sections of tube as spacers. Plate B rests on the jack and moves up and down. Threaded rods run from the top, down through holes in the table and are secured by nuts underneath.

Everything needed to assemble the press is listed, with measurements, in the parts diagram (Diagram 2). The size of this press has proven useful for making jewelry and small sculpture. Research was done by a machinist to determine the correct thickness for the steel plates, the threaded rod size and the number of nuts needed to withstand the stress of 20 tons. As the press is assembled, *level* each plate and make sure that they are all parallel. Also, it helps to grease the tubing in the areas where plate B slides.

Making Conforming Dies with "Devcon Plastic Steel"

The first step in making a conforming die is to make a model of the form you want to produce. The model could be made of plexiglass, wax, wood, plaster or plasticene. The depth should be about ¼ inch for a 2 inch diameter die. Larger dies could have a deeper relief. Avoid undercuts and sharp bends. Small detail and textures will not be reproduced, but can be added later by chasing. If the die is to be reversible, to produce two matching halves of a hollow form, the model's outline or silhouette must be perfectly symmetrical, and *extreme accuracy is necessary.*

Stick the model to a flat base of glass or plexiglass that is at least 1 inch larger in all directions. Then place a cleaned section of steel pipe around it to act as a retaining ring. The model can be as close as ⅛ inch to the ring, and as close as ⅛ inch to its depth. More than ¼ inch in either direction is unnecessary and wastes material. The ring should be filed so that the edges are flat and parallel. Next, put some plasticene around the outside of the ring to stick and seal it to the flat base. Then carefully coat the model and base inside the ring with the release agent that is supplied with the plas-



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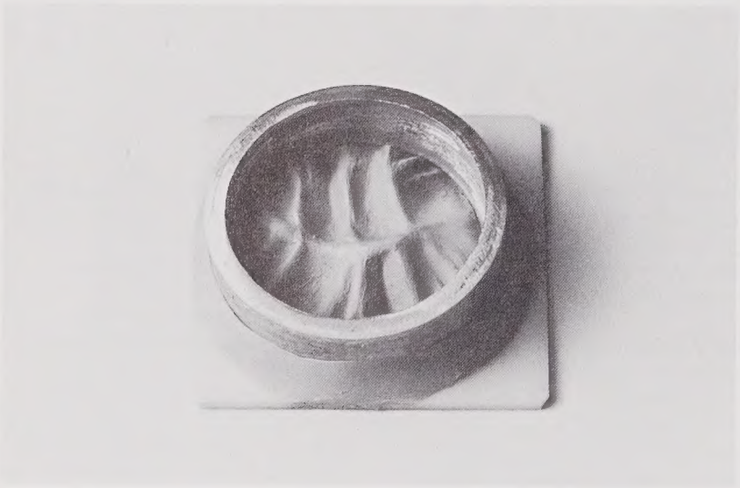

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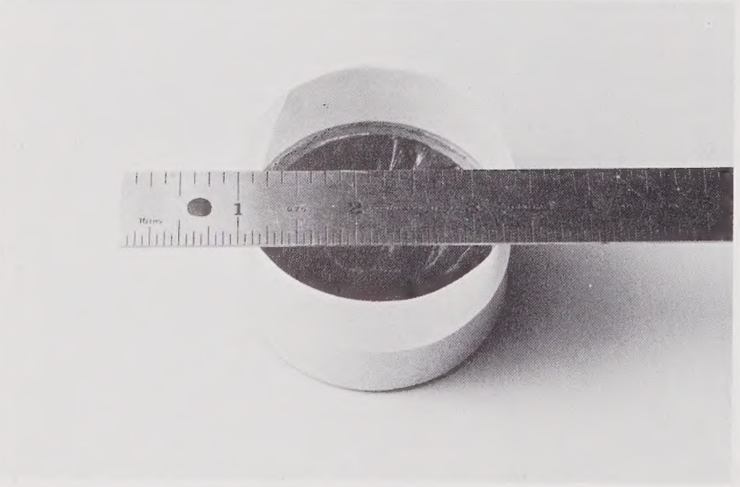

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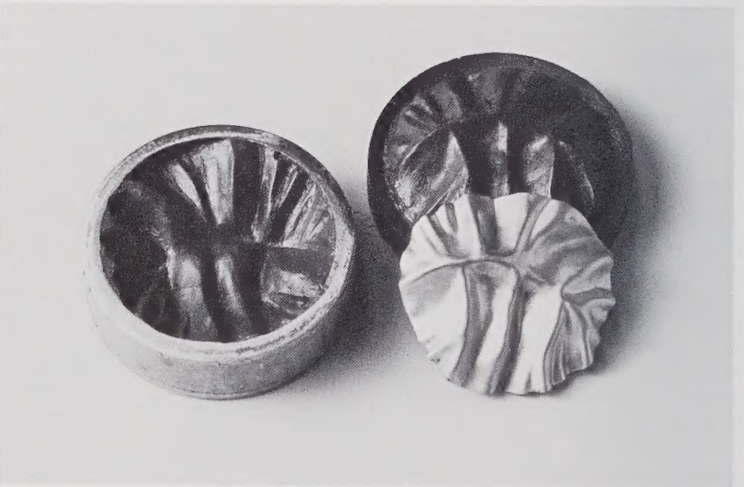

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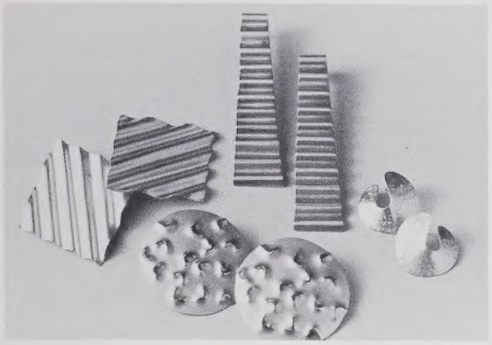
Making a Conforming Die

1. The first step in making a conforming die is to make a model of the form you want to produce. It could be made of wax, wood, plaster or plasticene, as shown. Stick the model to a flat base of some rigid material, such as plexiglass.
2. Place a section of steel pipe around the model to act as a retaining ring and put plasticene around it to seal and hold it in place.
3. The matrix die is used as a mold for the punch, with masking tape as the outside "retaining wall." Measure and calculate the amount of plastic steel needed for the punch.
4. Carefully coat the model and flat base material (if exposed) with the release agent supplied with Devcon B.
5. The plastic steel hardens in about four hours. When the model is removed, the matrix part of the conforming die is complete.
6. The punch can be removed from the matrix after four hours, but *wait* for a full cure (16 hours) before testing it.
7. Plastic steel conforming dies, as described, work well with 22- to 26-gauge soft metals (copper, silver or gold and their alloys), which have been *annealed*. Good results have also been achieved with soft grades of aluminum and annealed titanium.



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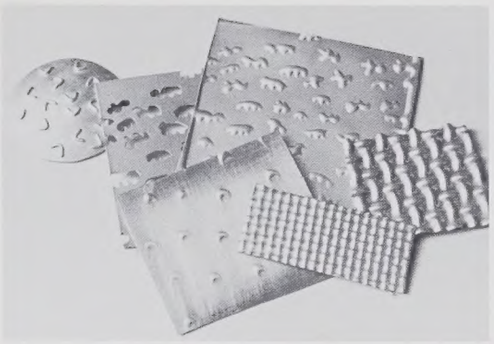

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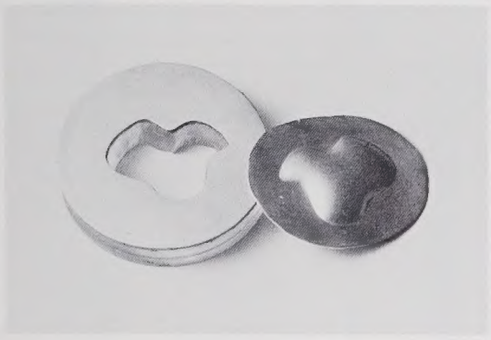

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1. Conforming dies constructed of steel rod were used to produce these two pairs of corrugated earrings. An embossing die, consisting of wires soldered to a disc, was used with a thin Flexane pad to make the round earrings. A shearing die was used to punch out the others. (Later the surface was hammered for texture.)
2. A very simple silhouette die can be made by sawing a shape out of heavy-gauge metal and backing it with plexiglass. It can be used with a contained block of Flexane acting as a punch to produce a "pillowed" form.
3. The use of Flexane for embossing achieves unique results. Embossing dies can be made by soldering wires or cutouts to a sheet of metal, or by piercing. Found objects, such as wire mesh, can also be used to emboss.
4. A block of Flexane, a tough rubberlike urethane, contained in a section of steel pipe, can be used as a matrix with a variety of different punches. Extra quantities of Devcon B can be poured into containers and later filed or carved into punches such as these.

tic steel. Avoid getting it too thick.

Now you are ready to mix the plastic steel. You will need a gram scale, a ruler, a calculator, a watch, waxed paper cups and a sturdy flat metal spatula (not a rod) for mixing. Be organized, and work in a well-ventilated area. The following formulas may look complicated, but careful measurements and calculations are necessary when mixing small amounts to both ensure good results and avoid waste. First, measure (in inches) the inside height and diameter (and divide by 2 to get the radius) of your die.

DEVCON PLASTIC STEEL B—LIQUID

1 pound (453.6 grams) "Devcon B" = 13.1 cu.in
34.63 grams = 1 cu.in.
Mix proportions: 90% steel resin by weight
10% hardener by weight
$\pi r^2 \times$ Height = Volume
Volume $\times$ 34.63 = Weight (total)

For example, the die in the photographs measures 2 inches in diameter and .75 inches high.
$\pi(1)^2 \times .75 = 2.36$ cu.in.
$2.36 \times 34.63 = 81.73$ grams
$81.73 \times .9 = 73.55$ grams steel resin
$81.73 \times .1 = 8.1$ grams hardener

Since there is some waste in mixing, and these are small volumes, do not subtract anything for the model when figuring for the matrix die. When figuring for the punch, the estimated volume of the model must be added. Measure the resin first, and add the hardener to the resin. Do not contaminate either container with the contents of the other. Mix thoroughly, until you have a uniform consistency—at least four minutes by the clock. If the mixture is too thick to flow easily around the model when poured, add a small amount of Anchor Seal Epoxy Thinner (not to exceed one teaspoon thinner to 75 grams Devcon B by weight). Pour slowly into the lowest area of the die and let the plastic steel creep over the model. Fill to the *top* of the ring. Any time that there is plastic steel left over, pour it into a container and use it later to file or carve a punch.

"De-bubblize" by tapping the die on a hard surface, and then place it on a level surface in a safe place to cure. The small bubbles that form on the top of the die are of no consequence. Working time is 45 minutes. Hardening time for a ½ inch thick die is about four hours: full cure takes 16 hours. Larger dies with a greater mass cure faster. A heat lamp may be used to hurry things up. Epoxy will not cure properly at temperatures below 60 degrees F.

When the plastic steel is hard, you can carefully remove the model from the matrix. At this point, you can smooth and make corrections with a file or a steel burr in a flexible shaft. It is also possible to fill in with plastic steel, should you have any large holes left by bubbles. The Liquid Steel Filler that you can buy in a tube at most hardware stores is fine for this purpose.

Now you are ready to make the punch, using the matrix as a mold. Make a "retaining wall" around the matrix with masking tape. Coat the entire interior of the mold with release agent. Repeat the same process of measuring and calculating the volume and weight of plastic steel needed to fill the die. The punch should be ⅜ to ½ inch thick at its perimeter. Remember to estimate and add the extra volume needed to fill the recessed area (left by the model) in the matrix.

The punch can be removed from the matrix when it is hard, but you should wait for the full cure before testing it. You may need to file off the rough edge at the top and fill any small bubbles in the punch.

When you are ready to test the conforming dies, begin with annealed 26-gauge copper which is at least ⅜ inches larger all around than the shape that you are forming. Lubricate the dies and/or metal with silicone or release agent.

The die can be aligned in the press by positioning it (with the punch in the matrix), in the center of the middle steel plate (B) with doublestick tape of the top and bottom of the die. Carpet tape works well. Raise the plate until the punch is stuck to the underside of plate A and the matrix is stuck to plate B. Then, release the jack and allow plate B to drop several inches. Place annealed metal on the matrix, and raise plate B again. If the metal flange starts to fold as you press, take it out and flatten it with a leather mallet or wooden punch. If the metal tears, use a heavier gauge metal or press it in small increments, annealing several times. Good results have also been achieved with soft grades of aluminum and annealed titanium. Forming less ductile metals, such as brass or nickel, is not recommended.

If you want to use heavier gauges, extra space in the die is needed. Carefully file down the punch, removing about a metal's thickness. Another method would be to file around the edge of the matrix. A third alternative is to plan for the extra metal thickness when making the die. A layer of wax, the thickness of the metal to be used, could be put over the matrix when the punch is being poured.

The edges of the die will wear with use. If you plan to make a large number of pressings, and/or the sharpness of the outside edge is extremely important (as in a reversible die), make a brass or steel plate, with the silhouette removed, to place over the matrix. It can be held in place with glue, doublestick tape or gravity.

As mentioned above, Devcon Plastic Steel can be drilled, filed and carved with a burr in the flexible shaft. These dies can be revised, altered and even completely reworked. Remember to wear a dust mask and goggles as the dust is toxic.

Die Forming with Flexane

Flexane is a tough, rubberlike urethane which can be used for metal forming. A pad or block of Flexane can be used as a matrix or female die, with a variety of different punches, or male dies. Flexane does not compress but flows up around the part being formed. After use, it returns to its original shape and can be reused thousands of times.

Flexane offers many new possibilities in die forming. For some applications it short-cuts the process. For example, a punch and a Flexane matrix can sometimes produce the same result as a conforming die, eliminating considerable setup time.

Susan Kingsley and Judy Ubick, *Shakudo Bottle*, gold and silver inlay and serpentine beads, 1¼ × 2 × ⅝", 1980. A reversible conforming die was used to form this piece. It is from a series of miniature bottle necklaces that had various surface designs incorporating the use of Japanese alloys, married metals, and soldered inlay

Flexane does not disturb or scratch the metal being formed, resulting in a smooth surface, free of hammer marks, that reduces finishing time. Etched, roll-printed, engraved or other textured surfaces can be formed with minimal change. And because uniform pressure is maintained over the whole surface of the work when forming with Flexane, married metals, soldered inlay and overlay work can be formed with less risk. And, finally, it is possible to form metal with results that are unique to this process. For instance, you can use Flexane for embossing.

Several kinds and sizes of Flexane blocks and pads have proven useful: contained blocks, uncontained blocks and pads. (Their applications will be described later.) They are made by mixing Flexane resin and hardener, pouring the mixture into molds, and allowing them to cure at room temperature. Flexane 94 Liquid, which is supplied in either one pound or 10 pound quantities, should be used. (Flexane comes in a variety of different compounds.) At present, it costs about $14 per pound. The seven sizes of blocks and pads suggested in this article require about 10 pounds.

Contained blocks can be cast into heavy steel pipe sections. The idea of containing the Flexane is that when you press into a contained block, it is forced to flow up and around the die, rather than out. The thickness of the walls of the pipe must be at least ¼ inch to withstand the lateral pressure of the Flexane. Plumbing pipe works well, and should be machine cut for accuracy. Most plumbing supply houses will do this for a reasonable fee. Suggested sizes for general use would be a 2 inch length of 2 inch diameter pipe, a 3 inch length of 3 inch diameter pipe, a 2 inch length of 4 inch diameter pipe, and a 4 inch length of 6 inch diameter pipe. To prepare the pipe sections, file away the rough edges and clean off any dirt or rust. Seal one end with heavy tape or with plasticene on a flat surface.

Flexane 94 Liquid can be prepared in measured amounts according to the following formulas. (Sizes are measured in inches and weights are in grams.)

FLEXANE 94 LIQUID

1 pound (453.6 grams) Flexane = 26 cu.in.
17.45 grams = 1 cu.in.

Mix proportions: 68.7% resin by weight
31.3% hardener by weight

First calculate the volume of the block you want to cast, measuring in inches.
For a cylinder: πr^2 x Height = Volume
For a block: Height x Width x Depth = Volume
Then multiply:
Volume x 17.45 = Weight (total grams)

W x .687 = weight of resin
W x .313 = weight of hardener

When mixing Flexane, work in a well ventilated area, and avoid breathing the vapor. Skin contact should also be avoided. Working life is only about 10 minutes, so have everything organized before you begin. The Flexane blocks and pads can be unmolded after about 12 hours, and 70% to 90% strength is achieved after two days. A week is needed for full cure: for best results, *wait*.

With these Flexane blocks you can use a great variety of different punches. Anything from a mushroom stake to a dapping punch can be used with a Flexane matrix to form a dome, without changing the surface of the metal. It is also possible to form metal which has wires or cutouts appliquéd. Specially shaped punches could be cast in metal or tooled from Delrin. Simple punches can be made very easily and quickly out of hardwood, masonite or plexiglass. (Plexiglass sheet has a surprising compressive strength of 18,000 psi!) Any extra Devcon B, which you might have left after pouring conforming dies, could be poured into a container, and made into a punch by carving or filing after it has cured. In general, thin metal pressed into a contained block will form with the greatest depth and detail, and this can often be improved by a second annealing and pressing. (Of course, *always begin* with annealed metal.) The uncontained blocks are for use with punches that are too large or oddly shaped to fit into the contained ones, or when great depth or detail are not necessary.

Another possibility is to use the contained Flexane block as a punch with a rigid silhouette die. The effect is something like a gentle sag or pillowing into the outline of the cut-out shape. Very simple silhouette dies can be made out of plexiglass or masonite. A carefully made steel or heavy gauge brass silhouette die (with a support of plexiglass or masonite to add thickness) can even be used as a reversible die by using it from both sides.

The use of thin Flexane pads for embossing achieves a result unique to this process. The metal to be embossed should be soft (either copper or silver) and annealed. Pierced plates of hardened (16- to 18-gauge) sheet metal, such as what one might use for roll printing, will make an embossed design which is more raised than a roll-printed one and without distortion. Plates of hardened sheet metal with a *raised* design (such as one with wires soldered to the surface) will create an impression on one side and a raised design on the other side, each with a different and unique appearance. The pressing of any number of odd found objects is possible, from wire meshes to key chains, from waffle irons to washers (the flat kind). The thin Flexane pads become very ragged-looking in a short time, but their performance is not affected.

Making a Shearing Die

It is possible to use the hydraulic press for shearing. A standard disc punch can be used in the press. The advantages are that the punches don't become mushroomed at the top and that it takes less muscle to shear heavy sheet. However, as with the mallet method, it takes some time to remove the punch and blank from the die.

Below are directions for making the simple shearing die in Diagram 3. As described, made of 14-gauge brass, it will shear 22-gauge or thinner copper or silver. It is being suggested as a practical way of filling the gap between industrial blanking and hand sawing. The useful life of this die is untested, as is the likelihood of being able to shear heavier gauges with a steel

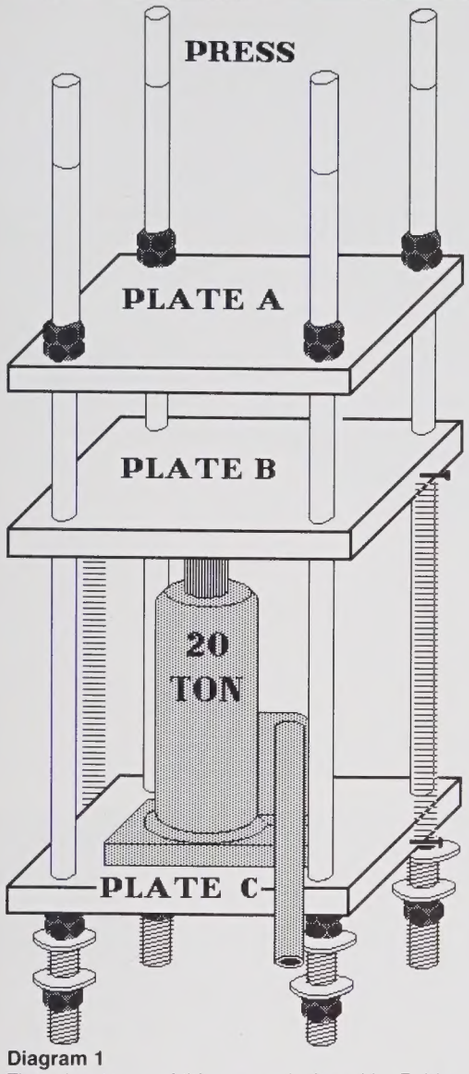

Diagram 1
The advantages of this press, designed by Robin Casady, are that it is inexpensive (compared to industrial models), easy to put together, and adjustable to various heights. The way it works is this: tubing acts as a spacer between the top and bottom plates (Plates A and C). They are stationary, although you can adjust the distance between them by using different-length spacers. Plate B rests on the jack and moves up and down. Threaded rods run from the top, down through holes in the table and are secured by nuts underneath.

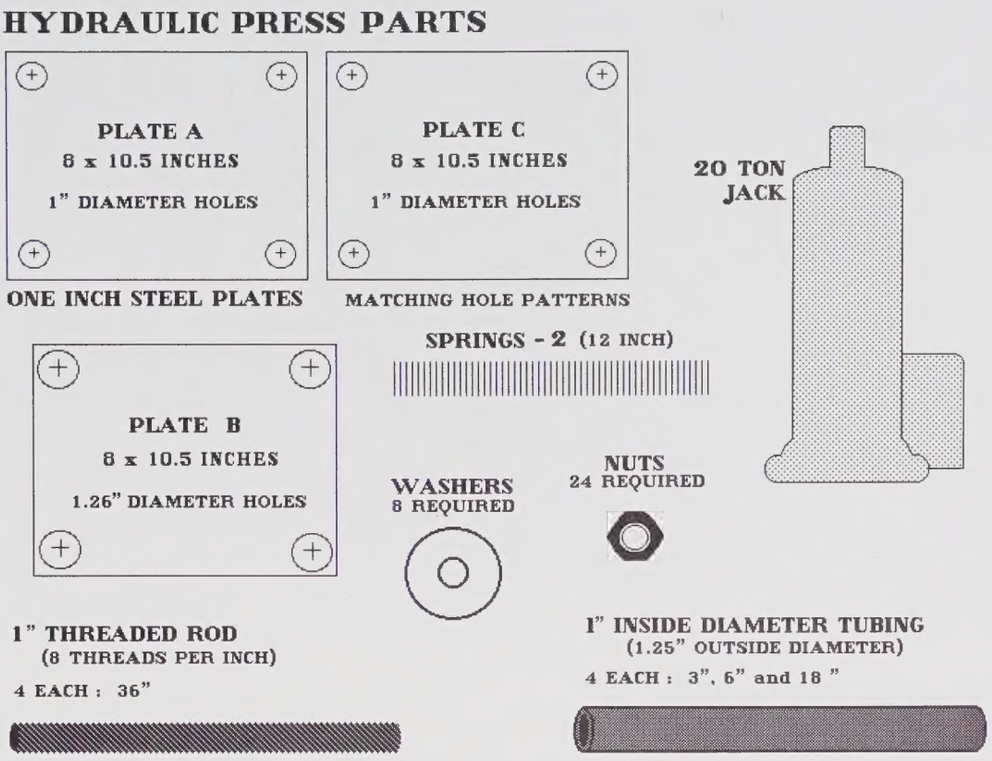

Diagram 2
Most machine shops or metal fabricating businesses can supply the steel parts needed: threaded steel rod, steel tubing, nuts, washers, and steel plate. They can also do the cutting and drilling. The springs come from a hardware store, and the jack can be purchased from an automotive supply store or tool dealer.

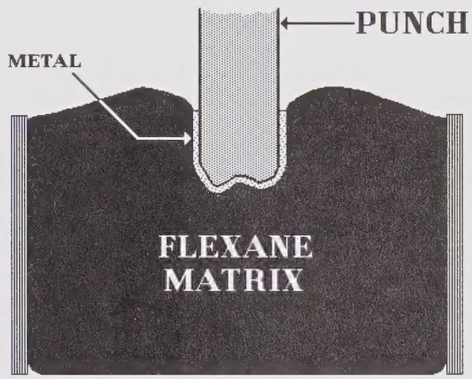

Diagram 4
Flexane is a tough, rubberlike urethane which can be used in die forming. A block of Flexane, contained within a steel pipe section, can be used as a matrix with a variety of different punches. It does not compress but flows up around the part being formed. After use, it returns to its original shape and can be reused thousands of times.

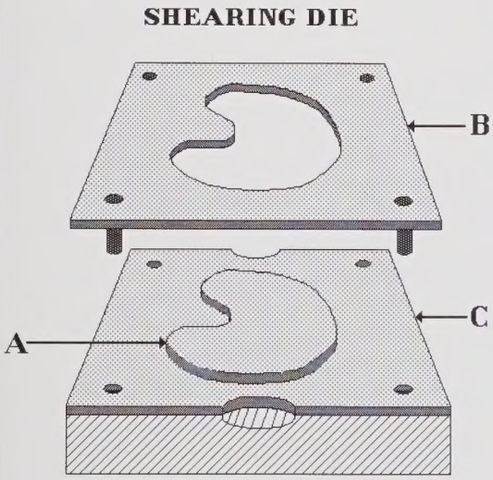

Diagram 3
A simple shearing die such as this, used in the hydraulic press, can fill the gap between industrial blanking processes and hand sawing. It can punch out identical pieces faster than you could saw them and produce shapes that you could not cut with shears.

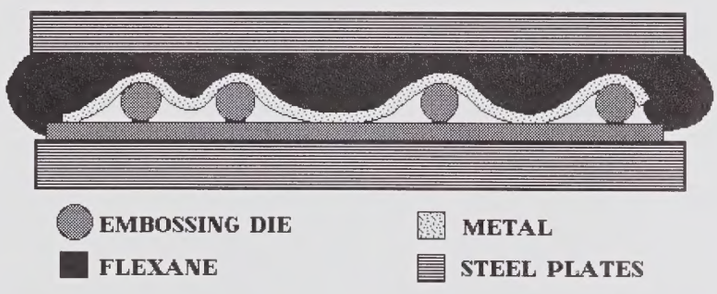

Diagram 5
The use of thin Flexane pads for embossing achieves a singular result. A plate of sheet metal with a raised design such as this, with wires soldered to the surface, will create an impression on one side and a raised design on the other side, each with a unique appearance.

Left: Susan Kingsley, *Pearly Pink Moment Pin,* copper, brass, sterling and acrylic lacquer, 2 × 1½ × ¾", 1982. The fruitlike shape is a hollow form that was made with a conforming die. The back is a flat sheet. Photo: Lee Hocker; **Right:** Susan Kingsley, *Embranglement Broach,* copper, sterling, stainless, bronze, patina and acrylic lacquer, 8 × 2 × 1½", 1984. Dies can be used to form very small parts that would be difficult to form otherwise. The flowerlike forms in this piece, each under ½" in diameter, were constructed of die-formed 28-gauge sterling. Photo: Lee Hocker; **Below right:** Susan Kingsley, *More or Less Improbable Bracelet,* copper, sterling, acrylic lacquer and patina, 8 × 6 × 3", 1984.

die. No claim is being made that it will punch out blanks *fast.* You still have to align and "crank" out each one and remove it from the die. And, as with any blanking die, considerable scrap is generated. But it will punch out identical pieces faster than you could saw them and can produce shapes that you could not cut with shears. There is minimal burr if you make the die accurately. Your only investment is three or four hours of time to make the die and a few pieces of metal.

First, trace your design on a flat sheet of 10- or 12-gauge brass or steel and saw it out. File the edges smooth, keeping them very straight and perpendicular to the faces. Rounded corners will cause problems. This cutout is part A on Diagram 3.

Next, you need to determine the overall dimensions for the die. There should be a minimum margin of ¾ inch around the shape to be cut out. From a flat sheet of 14-gauge metal, cut two plates the appropriate size.

Center part A, the cutout, over one of the plates, and carefully scribe a line around it. Drill and saw the shape out of the plate, staying *within* the line. Then very carefully file up to the scribed line, maintaining straight perpendicular sides. This needs to be done with *extreme accuracy.* Do not round the edges. Keep filing until the cutout, part A, just fits inside the hole. This plate becomes part B, the upper part of the die.

Next, place part B over the blank plate and scribe a line, using part B as a template. Clean and flux this blank plate and Part A, the cutout. Align and sweat solder them together, heating evenly with the torch and letting them air cool to avoid warping. This becomes part C, the lower part of the die.

A ⅜ or ½ inch thick piece of masonite or plexiglass, cut to size, forms the bottom of part C. Fit the parts together and stack with part B on top, part C in the middle and the masonite or plexiglass on the bottom. Tape them securely together in this position, with double-stick tape sandwiched in all the corners.

Then cut four guide pins of ¼ inch brass or steel rod. They should be about ½ inch longer than the height of the stack. Next, mark and center punch locations for the guide pins, positioning them about ⅜ inch in from the corners. Drill through all the layers with a ¼ inch drill bit (or one that is the same size as the pins). Use a drill press to insure that the holes are all exactly perpendicular to the plate(s).

Solder the guide pins through plate B, extending downward. Take care that the pins are exactly perpendicular to the plate. Plate C could be used as a jig. Again, take precautions to avoid warping the plate(s).

After cleaning everything up, you will need to do some final fitting. The guide pins should be filed even with the top and bottom of the die. The holes in part C should be large enough that the pins slide fairly easily, but there should be no "play." Cut finger holds from part C and the masonite or plexiglass to allow easier separation of the parts.

Glue plate C to the base. (An adhesive called Depend is ideal for this purpose.) Grease all the guide pins so that they don't become stuck, and clamp it or put it in the press to hold it together while the glue sets. (Yet *another* use for a hydraulic press!)

When you are ready to use your shearing die, spray it with silicone or use another lubricant on the pins. The metal to be punched is easier to handle and feed into the die if it is cut into a strip. A piece of hardwood on the top of the die will prevent the surface of the blanks you are making from being marred by the upper plate of the press.

Terminology

Die: A die is any one of the various tools or devices for molding, shaping, stamping or cutting metal.
Punch: A punch is a tool that is driven against a surface to be shaped or stamped and is sometimes called a "male" die.
Matrix: The impression part of a die, within which a form is shaped, is called a matrix, or "female" die.
Conforming Die: A die with two parts made of rigid material is called a conforming die. Metal is formed by pressing it between the two parts, which conform to each other.
Nonconforming Die: This is a die with only one part, either a matrix or punch.
Silhouette Die: This a very simple matrix die, consisting of a thick plate with the silhouette of a form cut out.
Reversible Die: A matrix or conforming die with a symmetrical outline is a reversible die. It can be used to shape two parts that fit together, making a hollow form.
Embossing Die: A die, either a punch or a matrix, used for making a design or pattern which stands out in low relief from the surface of a sheet of metal is an embossing die.
Shearing Die: A special die that cuts or "punches out" a shape from a sheet of metal is a shearing die. A shearing die can also be called a punch or blanking die.
Blank: The "cutout" metal shape produced by a shearing die is called a blank.
Flange: The extra metal that skirts a die formed shape after pressing is called a flange.
Devcon Plastic Steel Liquid—Type B: A steel-filled epoxy compound, consisting of 80% steel and 20% epoxy, used to make dies. When they are mixed, the steel resin and hardener form a pourable liquid.
Flexane 94 Liquid: A tough, rubberlike urethane which can be used for metal forming. The resin and hardener mix into a pourable liquid, which can be cast into blocks and pads.

Sources for Materials

Devcon Plastic Steel Liquid—Type B, and Flexane 94 Liquid are made by the Devcon Corporation, Danvers, MA 01923. For the name of a supplier in your area, call 1-800-225-2548. Unopened cans of Devcon B have a shelf life of two years; unopened Flexane 94, one year. The mixing ratios and instructions given in this article are current. However, these are subject to change by the manufacturer. Always read the manufacturer's instructions.
Anchor Seal Epoxy Thinner (*PA5022) is made by Anchor Seal Epoxy Products, 126 Water Street, Danvers, MA 01923.

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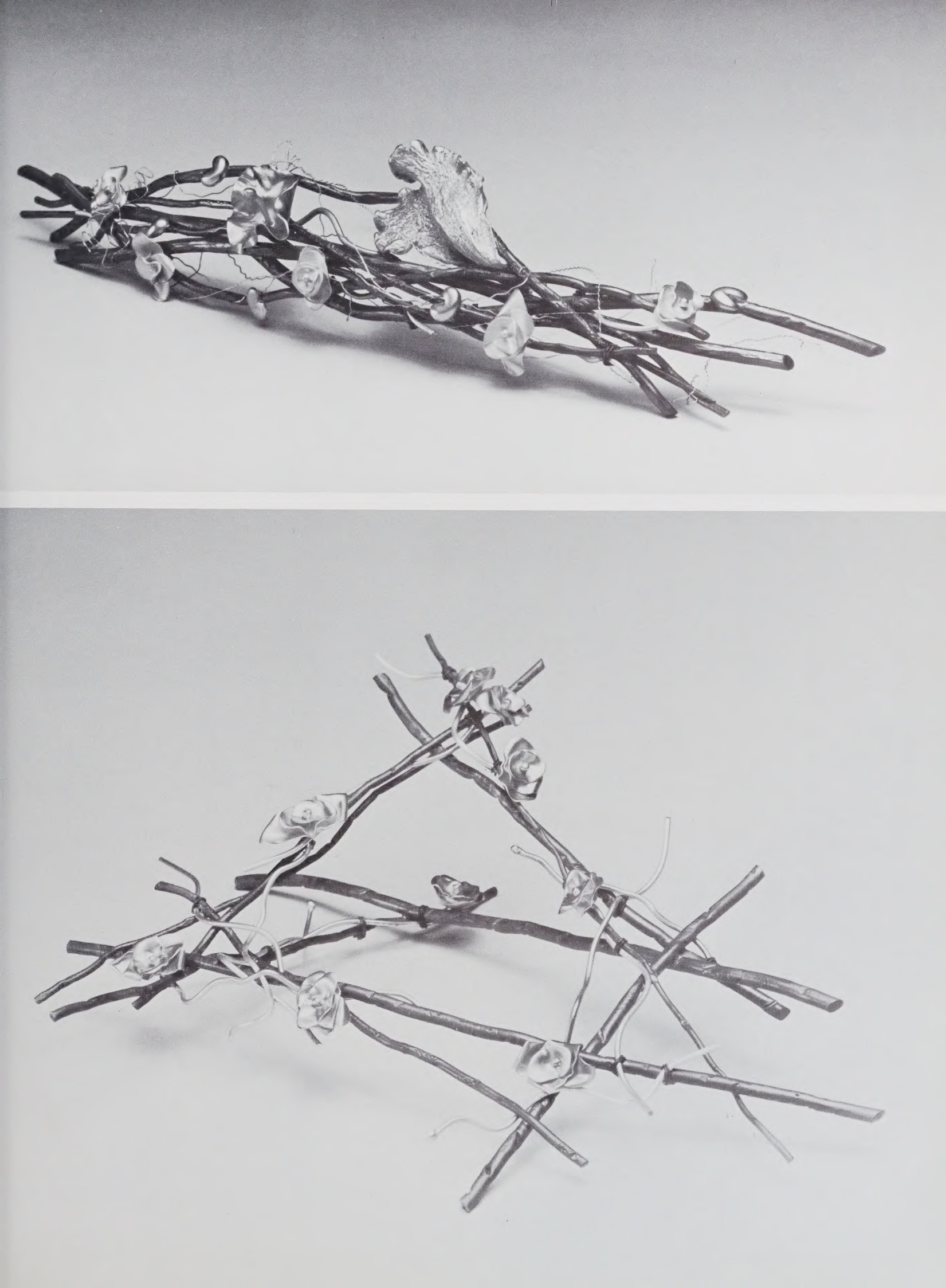
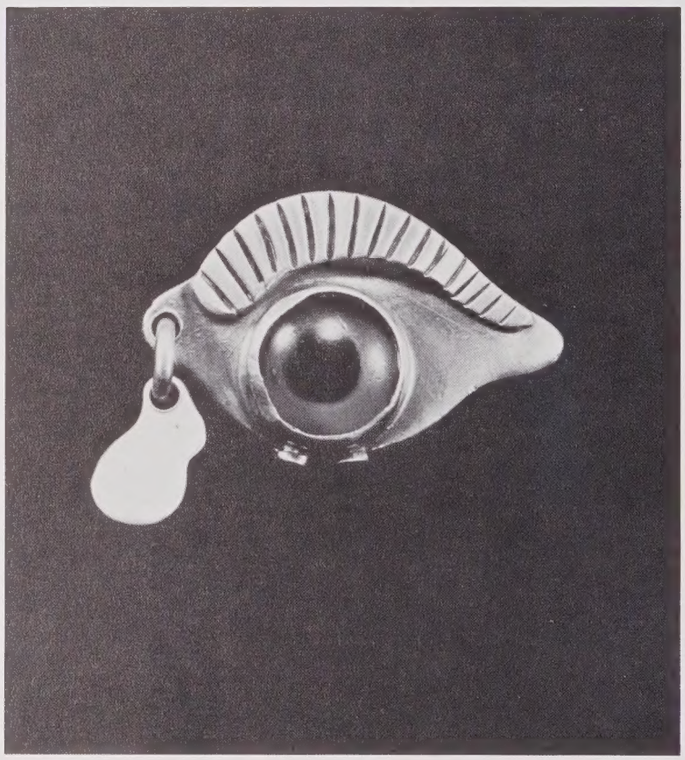
Susan Kingsley is an artist/metalsmith in Carmel, California.



STRUCTURE and ORNAMENT



American Modernist Jewelry 1940 – 1960

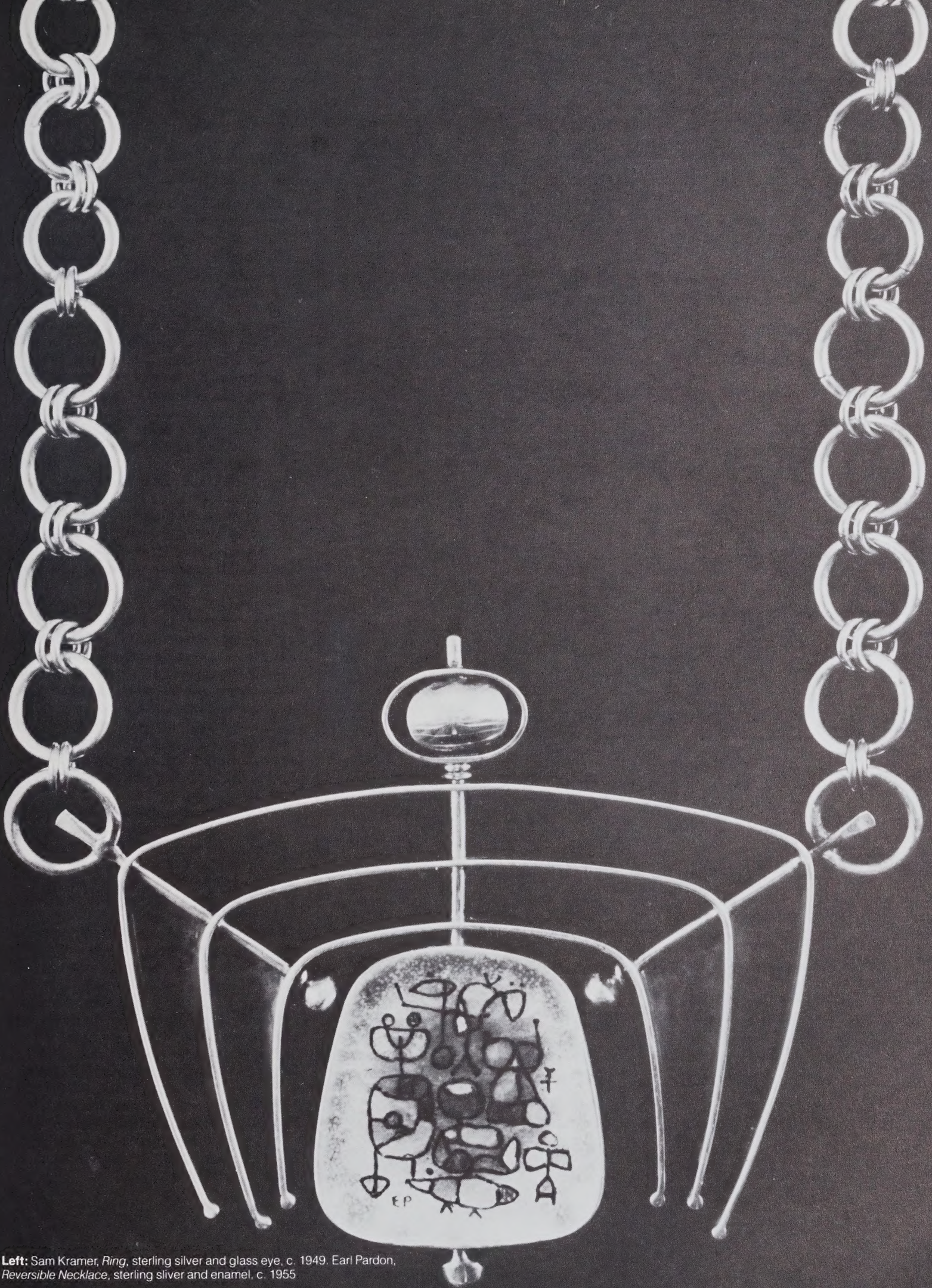
by Mark Foley

Photographs by Michael Norgart, courtesy Fifty-50, NYC

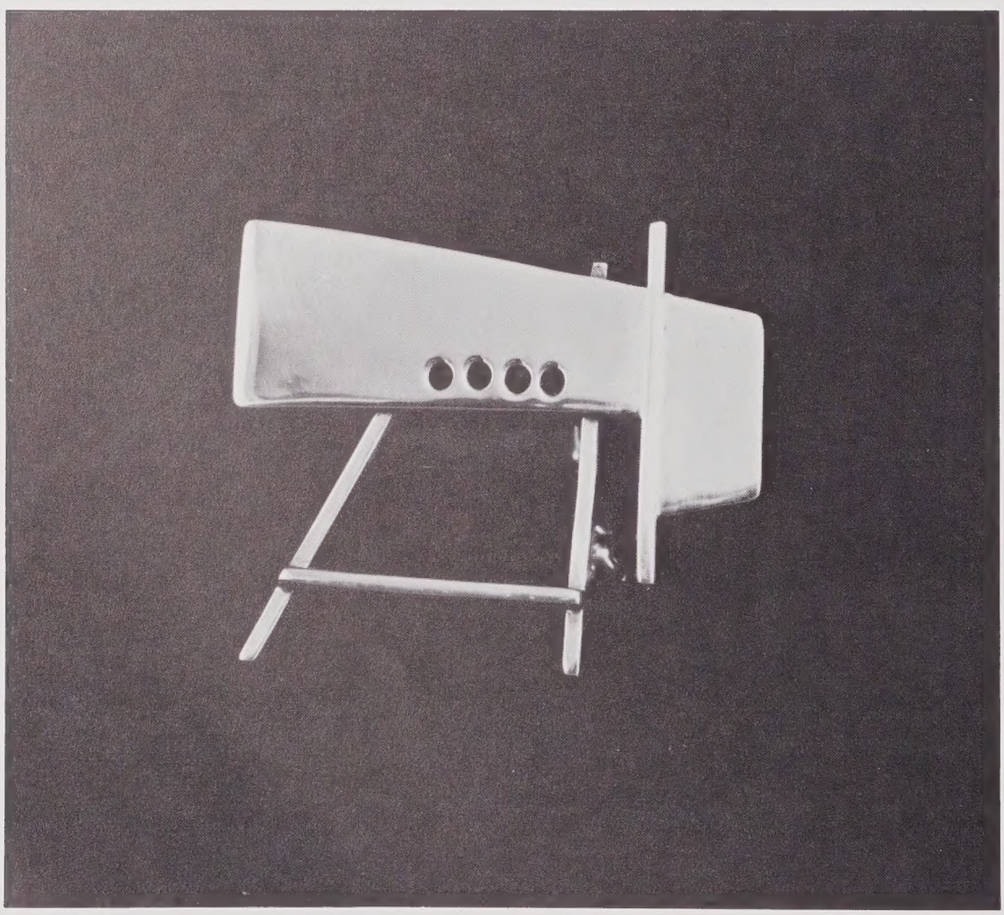
Recently, collectors have discovered a body of silver jewelry, eclectic in scope—by turns serious and whimsical—creative, original and quintessentially modern. It has been termed "50s jewelry," as if it embodied—in miniature—the aesthetics of that period. Yet, this casual association is misleading. While the 1950s did witness the widespread diffusion of this jewelry, its important features were formed as jewelers sought to ally themselves with the "project of modernism." This process was initiated in the 1930s and 1940s. It culminates—in the following decade—in the triumph of what can be called modernist jewelry as an official style. . . .

The origin of "contemporary jewelry" has been traced to 1936 when Sam Kramer began to make jewelry influenced by Surrealism.[1] Kramer drew on that part of the modern experiment which devolved around fantasy and the absurd, automatic writing, the unconscious, chance and parody. A superb writer, he recollects the accidental discovery of his favorite technique:

> One time, working by trial and error in the fireplace (a convenient place for such experiments) I was trying to evolve a new casting technique. When silver is molten it



Left: Sam Kramer, *Ring*, sterling silver and glass eye, c. 1949. Earl Pardon, *Reversible Necklace*, sterling sliver and enamel, c. 1955



flares, and dances like mercury. Suddenly a sputtering bubble of liquid silver squirmed out of the ingot-mold and cooled in an odd shape on the hearth. This piece, this accident of spilled metal, vaguely resembled a duck's head. And it started me thinking about how silver and gold could be blasted by flame until it ran almost fluid, then controlled, built-upon and fused again until it resulted in small sculptures with the texture and all the flamelike movement of this kind of primal ordeal by fire.[2]

The rapid heating and fusing of metal, the very urgency of the technique is akin to action painting, the loaded brush, work emerging at the edge of control. This unstable method would produce nothing resembling the cool technical hand of De Patta. The typical Kramer piece is suffused with fantasy and humor (and, of course, eyes). Meant to shock and provoke, his disquieting images recall Harold Rosenberg's idea of an "anxious object."

There is, also, a propensity in modernism for severing symbol from context and for transposing meaning. Introduced by Braque and Picasso, the method of collage/montage operated by displacing: "a certain number of elements from works, objects, pre-existing messages and to integrate them in a new creation in order to produce an original totality manifesting ruptures of diverse sorts."[3] Kramer, who advertised his gem trade in the back pages of *Craft Horizons*, advocates just such a purposeful inversion:

> Changes from the traditional have here an astonishing and somewhat ironic logic. The old stones, rigid in cut and shape, are being used now in an exciting new context, while the stones new in cut, shape and kind tend to fit into the older setting with the gem dominating.[4]

Identification as art became the principal doctrine of modernist jewelry. It was espoused with all the fervor of an article of faith. Phrases like "solutions to design problems," and "achieving equilibrium of design elements," appropriated from the criticism of nonobjective art, crop up repeatedly.

Moreover, modernist jewelers advanced a claim for the appellation "artist." They saw their work as fine art writ small—the miniature. De Patta considered her works to be "wearable miniature sculptures and mobiles."[5] Others, as well, refer to sculpture or modern art. Even their shops become "miniature museums."[6]

Above: Bob Winston, *Pin*, sterling silver, 1952. **Left:** Merry Renk, *Pin*, sterling silver and enamel, 1948

Modernist jewelers appear to have formed a conscious and voluntary affiliation with the fine arts. Behind the scenes, however, institutional forces were at work, serving to encourage this tendency. These were subsidy, patronage and professionalism. . . .

At the close of the 1950s, modernist jewelry had become an official style. Taken up by the university and the museum, patronized by the luxury market, complete with publications, associations, traveling exhibitions, juries, the modernist jeweler became the jeweler in the gray flannel suit. The vanguard had been displaced by the professional; experimentalism by "accepted" innovation.

In 1964, the jury for the St. Paul Gallery Exhibition would find the majority of entries: "repetitious or imitative, or contrived with the obvious effort to be different."[7] Modernist jewelry was now a product, and, as one modern critic of the fine arts has noted, once a produce has been named, other examples are churned out, as if to order.

Modernist jewelry is not merely jewelry, or even art. Each piece serves as a signpost or marker in the symbolic landscape traversed by modernism. Its range includes the cerebral association of the Bauhaus and the stream of consciousness of the Dada/Surrealist. As art and artifact, modernist jewelry redefined jewelry and illustrates the forces that produced the dynamic of modernism.

Notes

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2. Kramer, Sam. *Design Quarterly,* no. 45–46 (1959), p. 56.
3. Group Mu, eds. *Collages* (Union Generale: Paris), 1979, pp. 13–14.
4. Kramer, Sam. "Gems in New Contexts," *Craft Horizons,* vol. 12, no. 5 (Sept./Oct. 1952), p. 33.
5. Uchida, Yashiko. "Margaret De Patta," *The Jewelry of Margaret De Patta* (The Oakland Museum: Oakland, CA), p. 12.
6. "Arts and Ends." *Craft Horizons,* vol. 10, no. 1 (Spring 1950), p. 22.
7. Morton, Phillip. *Contemporary Jewelry: A Studio Handbook* (Holt Rinehart Winston: New York), 1970, p. 49.

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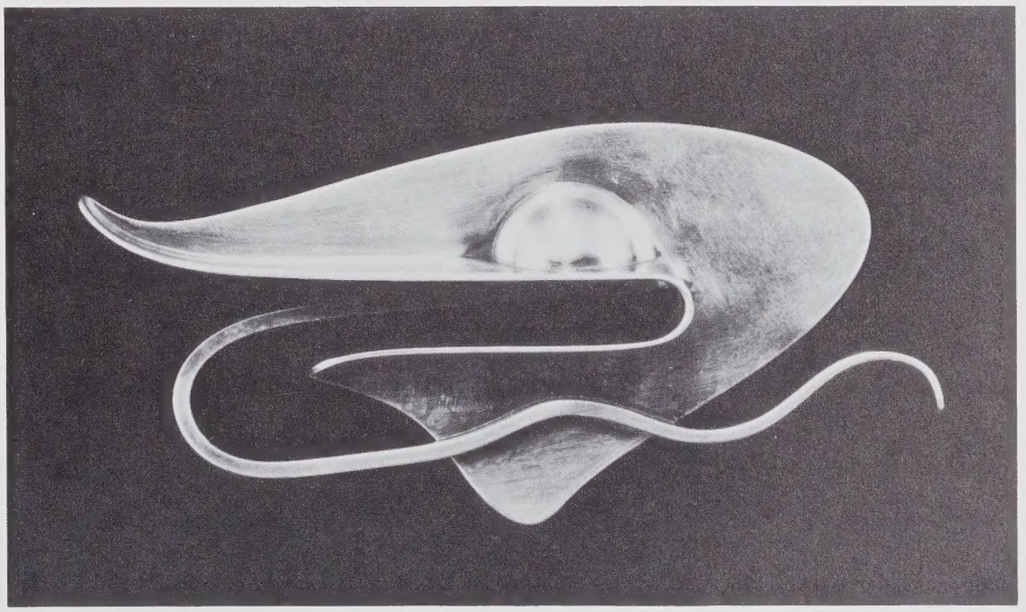
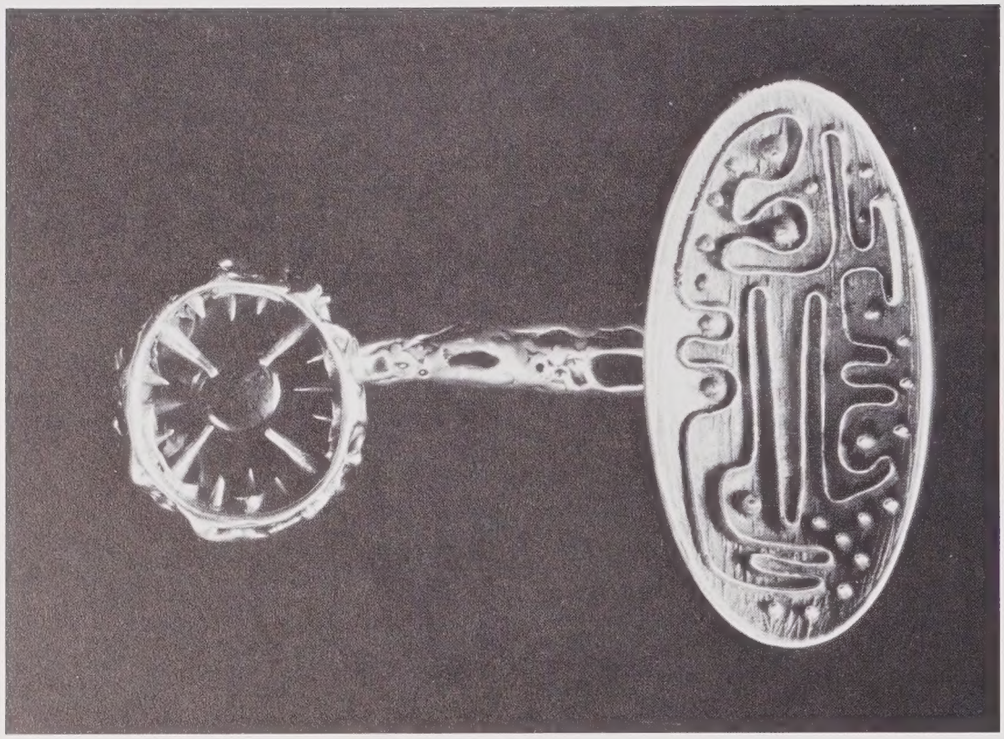
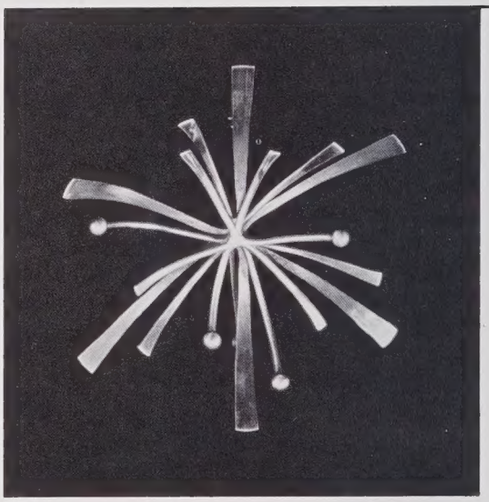
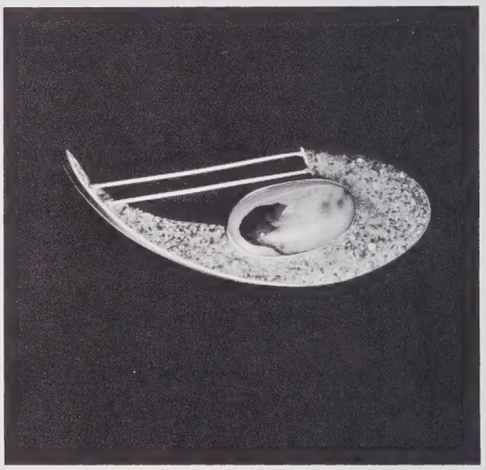
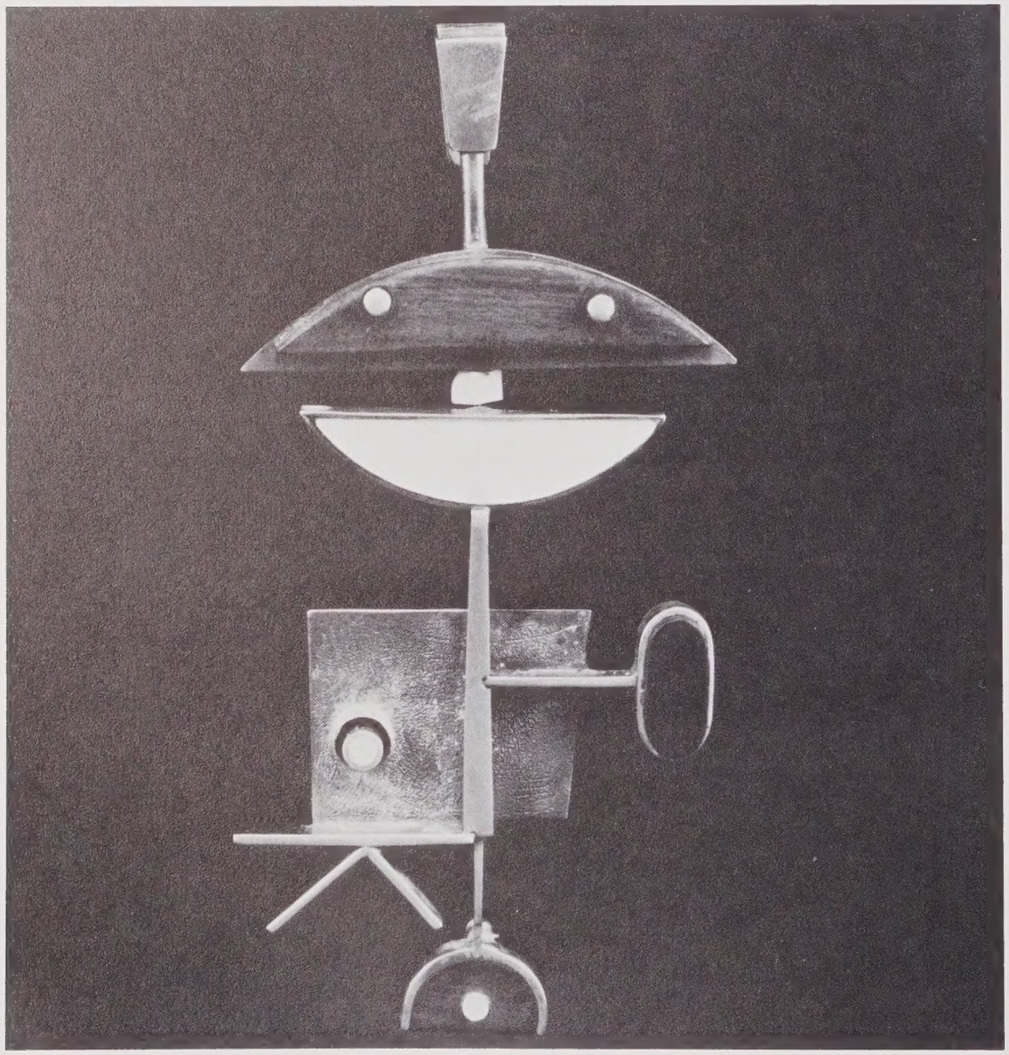


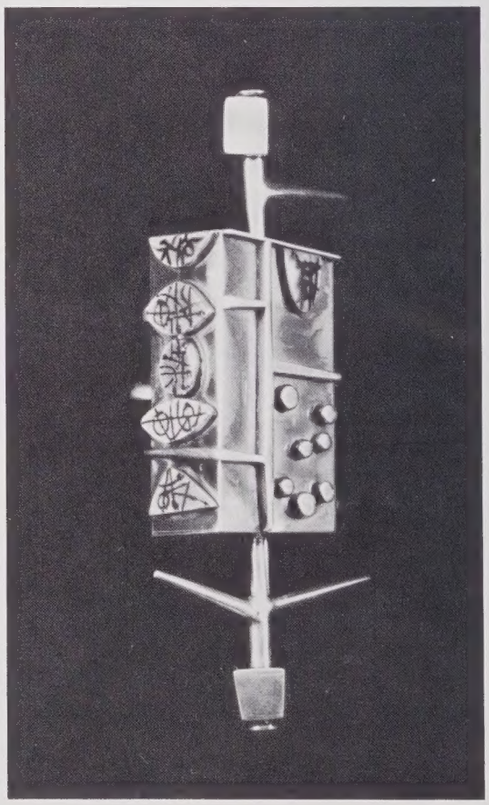
Above: Earl Pardon, *Pin,* sterling silver and coral, 1952. **Right:** Paul Lobel, *Pin,* sterling silver, c. 1948











THE SEARCH FOR MODERNIST JEWELRY

by Mark Isaacson

It was about seven years ago, I was living in Paris, spending a typical Sunday afternoon scouring the flea markets of Clingancourt for "hidden treasures." I had moved to Paris to paint, although at the time I found myself buying and selling Art Nouveau and Art Deco "objets" to support myself and to buy canvas and paints. While digging through a box of old jewelry, my eye was attracted to a small silver pin. Protozoan in shape and set with a small cabochon garnet for an eye, this strange piece fascinated me. There was a vague resemblance to Klee or Miro, perhaps from the 1950s, I thought. I was becoming increasingly interested in the decorative arts and furniture of the 1940s and 50s and realized how closely related they were to the art and architecture of the time. I examined the little "creature" in my hand and found a signature. I still had no idea as to its origin. The pin appealed to my sense of the esoteric and the unusual, so I bargained a bit with the vendor and arrived at what I thought was a fair price. Having affixed the pin to my lapel, I wandered off, content with my new find.

Several years passed, and my casual interest in the decorative arts of the 40s and 50s developed into a full-time career. My addiction to collecting had turned my small Parisian artist's garret into a warehouse for "atomic" style furniture, biomorphic pottery and glass, as well as stacks of reference books and periodicals.

In 1980 I decided it was time to return to New York, where it was my intention to open a gallery devoted to the design of the postwar era. Located in the SoHo district, Fifty-50 became the first shop of its kind, specializing in the decorative arts of the mid-20th century. It was only afterwards that I would discover the small amoeba pin that still adorned my lapel was the work of a man named Ed Wiener, who in the mid-40s was among the first craftsmen to open a shop carrying studio jewelry in the modernist style.

Over the next few years I continued to find pieces by other East Coast artists such as Sam Kramer, Art Smith, Paul Lobel, Bill Tendler and Henry Steig. I learned through talking with craftsmen and reading old issues of *Craft Horizons* and the Walker Art Center's *Design Quarterly* that there were many names that belonged to what one might call the "American Modernist Movement." Artists working across the country had redefined the vocabulary of personal adornment. They set no boundaries for their means of expression, and their innovative use of materials—from silver and gold to pebbles and plastic—opened the doors for contemporary jewelry. I began actively collecting these very distinctive pieces and attempted to gather as much information as I could find on the subject.

Ed Wiener, *Pin*, sterling silver and garnet, c. 1948

In 1983, Fifty-50 and Mark McDonald Ltd., another New York City gallery, merged and moved into a 5000 square foot space eminently suited for the kind of modern design exhibitions my new partners, Ralph Cutler and Mark McDonald, and I wanted to present. We planned shows featuring the work of Charles and Ray Eames, Frank Lloyd Wright and Italian glass artists working for Venini and other houses. One of the most exciting shows was our recent exhibition "Structure and Ornament: American Modernist Jewelry 1940–1960," held in December, 1984. Having decided there was sufficient interest and hoping there was enough material available to do a show, we set out to put together a representative selection of work by artists whom we felt were important and had contributed to the field of modern jewelry. The exhibitions sponsored by the Walker Art Center in the 1950s served as a basis for the artists selected. Having spent weeks tracking down artists who were still living, we started phoning to find out whether 30 years later we would still be able to find pieces from this era. One of the first people we were able to locate was Earl Pardon. Still very active, Earl at first wondered why we would be interested in his early work. We explained the premise of our show and asked to visit him. Much to our surprise, Earl had kept a sizeable collection of his early pieces. Excited by the variety and quality of the work we saw, we arranged to take the entire group. Our warm reception by Earl and his cooperation helped fire our enthusiasm. Merry Renk, living and working in San Francisco, was the next artist we contacted. Merry was invaluable in helping to locate many of the artists working on the West Coast. I visited California to talk with these artists and to see the jewelry that was available. For reasons of time and distance, a few craftsmen were interviewed over the phone. But in every instance, being able to talk with the artists and select the work for the show firsthand helped solidify the theme of the exhibition. The idea of the exhibition intrigued them, as most of them felt, as we did, that this period was very important in the history of modern jewelry making. They were among the avant-garde, and although many of them knew each other, there was a great sense of individuality and experimentation.

Limitations of time, the availability of original pieces and the difficulty of locating many of the artists whom we wanted to include prevented us from making the show as comprehensive as it might have been. There were so many fine artists working, it would have been impossible to locate pieces by all of them. But, given those limitations, an excellent group of artists, many of whom are still creating, agreed to participate. In addition to the artists already mentioned, the exhibition included: Franz Bergman, Harry Bertoia, Irena Brynner, Betty Cooke, Margaret de Patta, Michael Jerry, Ed Levin, Esther Lewittes, Peter Macchiarini, Phil Morton, Ronald Hayes Pearson, Svetozar Radakovich, Florence Resnikoff and Bob Winston.

The response from collectors, students and craftsmen as well as the general public was so overwhelming that we extended the show an additional month. We hope over the next few years to continue to acquire fine examples of jewelry from this period. There remains much more to explore and the thought of another exhibition is already in our heads.

A catalog illustrating 93 of the 156 pieces of jewelry from the show, with essays by Robert Cardinale, Director, Program in Artisanry, and Mark Foley, author and jewelry collector is available for $12.50 from: Fifty-50, 793 Broadway, New York, NY 10003.

Opposite page, clockwise from upper left: Bob Winston, *Coat Fastener,* sterling silver, 14k gold, green tourmaline, 1950; Merry Renk, *Pin,* sterling silver, c. 1951; Irena Brynner, *Pin,* 14k gold, moss agate, sand, gold filings, epoxy, c. 1950; Earl Pardon, *Reversible Pin,* sterling silver, ivory, rosewood, ebony, enamel, 1956; Peter Macchiarine, *Pin/Pendant,* sterling silver, iconel, brass, copper, ebony, ivory, c. 1950

FRIDL BLUMENTHAL

by Frank Getlein

Having turned 80 with the spring this year, Fridl Blumenthal qualifies as a grand old lady of metalwork. Like grande dames from time immemorial, she has a powerful predeliction for gold. For her, however, gold is not something with which to purchase the perquisites of grande dametude. For her, gold is something to work, and work it she does, with all the tools of her trade, almost every day when at home, as faithfully as she swims her mile.

The attractions of gold are familiar to every metalsmith. One of the earliest metals to appear in human history, it combines the slightly contradictory qualities of extreme durability with relative ease of working. Gold can be melted and cast, drawn out into wire, hammered into ultrathin leaf, cut, burned and granulated. The beautiful metal responds to any method and has been doing so for at least the 5,000 years we know about, in every civilization that we know anything about at all and some that we don't know much about, except their use of gold.

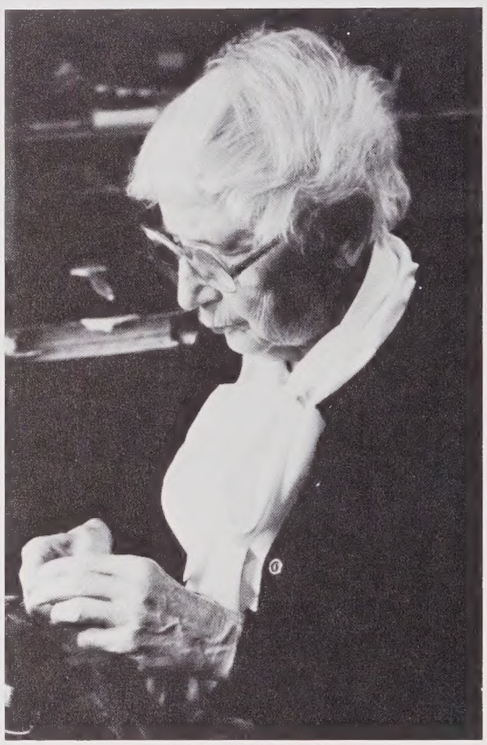
In spite of those charms and values, gold has gone out of fashion among many, even most, art metalworkers today. The steeply rising cost over the last decades has certainly been one factor, but another no less certainly has been the age's restless drive to experiment in all the arts, to do things never done before, to be new at all costs. In metalwork for some time now, that has translated as collages, derived ultimately from Picasso and Braque in the early years of the century, and the use of metals formerly rejected by jewelers as "base" in both senses.

Fridl Blumenthal will have none of it. For her, the base metals remain base simply because nothing responds to the artist's touch as beautifully and in as many ways as gold does. Against the grain of her time, she works in gold, accenting it sometimes with precious and semiprecious stone, including diamonds as desired.

The shaping circumstances of her early years have been all too common in our century and are implicit in two fundamental facts: she was born and brought up in Berlin; and she is Jewish.

As a child she was always clever with her hands, loved visiting the then world class Berlin Zoo and modeling the animals in plasticene. She studied briefly with a young Berlin sculptor, Peter Fingestein, now an art historian, esthetician and head of the art and music department at Pace College, New York, as well as a multi-media artist.

At one point her mother obtained an introduction to a locally famous craftswoman who agreed that young Fridl's work showed great promise, but added, finally, "Look, I am very well known in Berlin, everyone likes my work and I can't make a living at it. Why should you



start out on such a career? Do something sensible."

Something sensible, as often, was a commercial school, whence she graduated into banking, developing a taste and a talent for international finance, the moving of money from nation to nation, the subleties of foreign exchange.

Then two things happened. First she married her sweetheart of 10 years, Bernhard Blumenthal, a young metallurgical scholar with a fellowship at the prestigious Kaiser Wilhelm Institue. Second, Hitler arrived in power and Bernhard's fellowship vanished overnight. The newlyweds knew they had to leave Germany. The bureaucratic rigamarole outlined in Menotti's *The Consul* was played out at the American embassy, but eventually they got the necessary visa and arrived in the U.S. in 1937, where Bernhard had a job awaiting him with American Smelting and Refining, first in Pittsburgh, then at the laboratory in New Jersey. They discovered that a European degree was worth about half an American one. With two small sons to care for, Fridl began looking for some sort of work she could do at home.

She found it, but not until after another move. Bernhard's work attracted the attention of the people organizing the Argonne Laboratory nuclear projects and he went there to help develop the transmutation of uranium into plutonium. The family moved into a highly experimental new community, Park Forest, where Fridl became secretary of the school board: "Nowhere else," she says, "could we have become Americans so fast."

She became a practicing metalworker even faster. Bernhard read a review of a book about wire jewelry and saw at once that was what Fridl wanted: "Get yourself some wire and an inexpensive pliers," he urged, and she did.

From snipping and joining copper wire, she progressed swiftly to silver, learning a lot from a Chicago silversmith, Anna Halasi, who worked in her kitchen, rather less from classes at the Art Institute. And of course, at every point, Bernhard, a top ranking metallurgist, was a great help. From the beginning, she wanted her work to be "both timeless and modern." The most cursory review of her work shows that from the beginning she succeeded.

She also succeeded commercially in short order. One day in 1948, she walked into Georg Jensen and walked out with a contract for future work. She got the same sort of treatment at Cooper in Philadelphia and Marshall Field in Chicago. These three kept her busy.

Too busy. As a successful silversmith selling to top retail firms, she found that it took all the running she could do to stay in the same place, just keeping up with orders. After a decade of this, she figured out a solution and the opportunity presented itself to pursue it.

The solution was gold. Besides the inherent properties of the queen of metals, the attraction for Blumenthal was simply that the price of gold was so high that the jeweler's reasonable added percentage was sufficient for her to slow down, spend more time developing each piece and, for that matter, spend some time not overtly working at all, that time for hidden growth, essential to any artist.

The opportunity was provided by her husband, who was invited to Belgium for two-and-a-half years to set up a plutonium laboratory for the government. The Belgians gave Fridl space and a workbench and that was all she needed. Much more important, the provincial town of Mol, where the plutonium laboratory was being established, was handy to Düsseldorf in Germany, the home of a craftsman Fridl regarded as an outstanding goldsmith and teacher of the art Friedrich Becker. She obtained a special-student status at his school in that ancient metalworking city. In two sessions of two weeks each, working in between at her bench in Mol, she got the training she needed to go on the gold standard.

With one exception, she tends toward small stones, especially diamonds, using them as Renaissance jewelers did to be focal points and to set off the ingenuity of the design, rather than, as in all too many 19th- and 20th-century examples, simply to announce loudly

the owner's wealth in the sheer size of the rock. The exception is those stones that have interior patterns of interest in themselves, notably agate, quartz and amethyst. She gets these, in lumps or slices, from a third-generation German stonecutter, Bernd Munsteiner. Through a process of his own devising, he can reveal within a slice of agate successive ultra-thin strata that suggest river banks or a topographical map. "When I work with stones, the stone tells me what to do with it," she says.

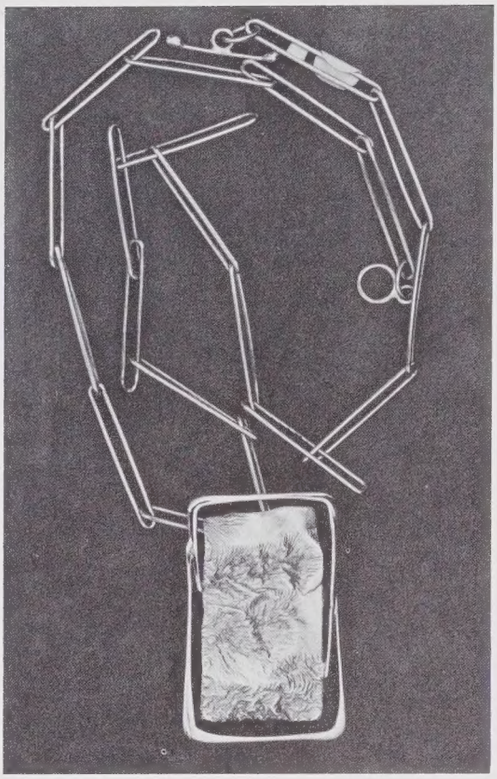
She has always liked making chains and designs them in endless variations. She believes in variations, for that matter, and will almost automatically rework a design that pleases her from brooch to earrings to necklace to bracelet.

The same thing happens when, on rare occasions, she designs a setting for a small stone head, pre-Columbian or Egyptian, perhaps, in origin. She has looked to similar sources as inspiration, never copying or reproducing, but welcoming the influence of Polynesian forms, for example, which predominated in her early work in silver. The forms of nature have also been a constant source.

Most of her work is small-scale sculpture, as well as jewelry of never-failing visual interest. Once the eye adjusts to the scale, you look at a Blumenthal ring, for example, exactly as you look at a piece of sculpture. It exists in three dimensions and the eye explores them all as the spirit responds to the adventure of form and texture. The American sculptor who comes to mind when you contemplate Blumenthal's work is Seymour Lipton, who makes very large pieces, completely abstract yet mysteriously evocative of ritual and myth, with surfaces covered with highly textured accretions. Blumenthal's pieces are similarly evocative, but what makes the comparison unavoidable is the paradoxical combination of great delicacy and great strength. The two are not easy to keep together in balance, yet Blumenthal does this in everything.

In a ring with an amethyst crystal, that stone is so cut as to seem to be offered up by the surrounding gold, a delicate gesture in the midst of the rough cut of the stone, rough cast of the gold. The same gesture of offering in a ring with a totally different look poises a pearl on the end of a coil of thick, textured gold, making an almost 17th-century gesture of deference with the least likely of glittering surfaces.

In short, her work expresses in jewelry or small sculpture that guiding principle in diplomacy, indeed in all forms of governance, too often not observed in its entirety, *Sauviter in modo, fortitur in re*, strong in substance, graceful in manner.



Clockwise from top left: *Neckband and Pin/Pendant*, gold, nine diamonds, 1966. Photo: Roger Brues; *Pin/Pendant*, gold; *Brooch*, gold, 1966. Photo: Roger Brues; *Brooch*, gold, 1000 year old Mexican votive head; *Brooch*, gold, four diamonds, 1966. Photo: Roger Brues, courtesy American Craft Council

REVIEWS

Image as Metaphor
Beaver College, Glenside, PA
March 29–30, 1985
by Dana Standish

Sponsored by the Pennsylvania Society of Goldsmiths, with the support of the metals departments of Beaver College, Philadelphia College of Art, Moore College of Art, Tyler School of Art and Millersville State University, the "Image as Metaphor" symposium featured the works of artist/metalsmiths Harriete Estel Berman, J. Fred Woell and Bruce Metcalf. The symposium centered on an exhibit of the three artists' work, complemented by a day-long slide presentation and panel discussion during which the artists were asked questions pertaining to the sources and meanings of the metaphors each of them use in their very personal imagery.

Harriete Estel Berman is a West Coast artist whose work is titled collectively *The Family of Appliances You Can Believe In.* Berman makes meticulously created household appliances that are designed to show the allure of consumerism while at the same time making sardonic references to women's role in modern society. Many of her references seem obscure enough as to be a sort of "in" joke, but most of her works are so filled with images that they are bound to make an impact on one level or another. *Idols of Generations, Illusions to Prophesy* (1983) is a work whose perhaps unnecessarily obscure title does much to undermine the directness of the imagery. The piece is a common, household "Never Lift" steam iron, about one-third life size. However, the front surface of this "normal" steam iron opens to reveal the repoussèd faces of many women and girls, all shielding the bottom half of their faces with large flat discs (dinner plates?). Holding these discs are hands cut out of Ivory Soap magazine ads. The women are anonymous, covering up most of their faces. But Berman's message is clear: women are trapped by housework and trapped by advertising into thinking that modern appliances will somehow make life easier.

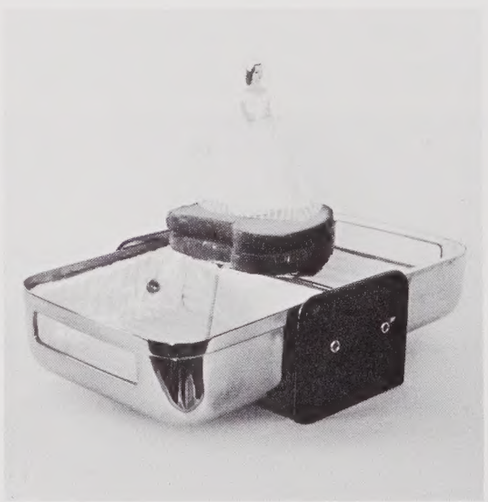
Other Berman pieces are equally sardonic if more humorous about "women's place." *Toast to the Bride* shows a shiny new toaster that opens to reveal a bride doll on resin-saturated slices of Wonder Bread rising out of her quilted toaster-coffin. *Eveready Working Woman* is an electric drill-cum-egg beater, which also includes a compartment with six shades of eye shadow and one with a lipstick, as well as a blow dryer, all the necessities for the woman who really wants to compete in a man's world.

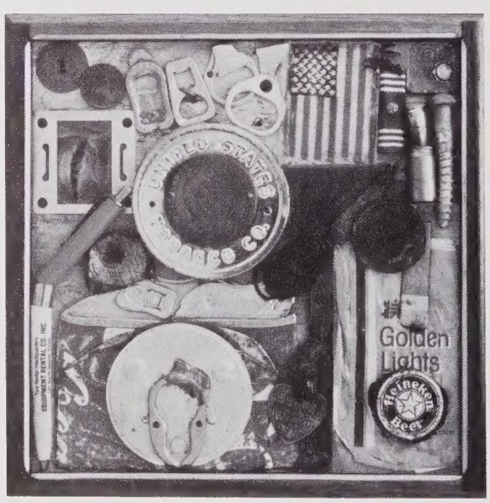
J. Fred Woell's images are equally as direct, if on a different theme. Woell's theme is that of aging: specifically the feelings of the male at mid-life. The images in this show were as pointed as previous Woell works, but this time they seem to be pointed inward, instead of at society. *The Male Mid-Life One-Step* is a cast likeness of a man stepping blithely, full-speed-ahead, hat over his heart, off the end of a trivet and into the Great Unknown. The trivet is of standard-issue 50s household variety, inscribed "Good Luck," which is just what this hapless fellow is going to need as he moves into late middle age.

Boy Scout Gets Old is another Woell piece on this same subject. It is a wooden music box with a cast boy scout standing at attention on top of what appears to be a two-tiered wedding cake. The boy scout holds the mask of an old man in front of his face. As the music box plays, a small sports car turns inexorably around and around.

Both Berman and Woell have found ways to translate their artistic metaphors into images that are accessible to the viewer. Bruce Metcalf, the third member of this show, seems to have an equally strong sense of purpose in his work, but his images are so muddled and self-conscious as to render any question of metaphor moot. If the viewer cannot grasp the meaning of the metaphor, meaning may as well not be there at all. And so his works must be seen merely in terms of design and craftsmanship. This surely puts Metcalf out of his league in a show titled "Image as Metaphor" with images as clear as those of Berman and Woell.

Metcalf's preoccupation seems to be with exorcising the frustrations he feels about life. To this end he has constructed a huge tower of metal joined helter-skelter, titled *Got an Ulcer.* This piece, with its jagged, violent forms, is more likely to *cause* an ulcer than it is to convey what he felt like when he "got an ulcer." Other works, like *Natchos and Net* and *Two Figures Breaking Away,* are conglomerations of jagged forms, some being torn limb from limb, decorated with wild zigzag shapes and twisted wire. Many of his works are plopped on enormous pieces of plexiglass that have been splattered for some reason with purple paint. Metcalf achieves a sort of wild tension in his works—partly because of the violence of his imagery and partly because this violence is contrasted with the fact that he really is a very fine craftsman. He has a showy way of arranging shapes, but he doesn't appear to have much to say. Many of his solutions are too pat and depend too much on the viewer's gullibility in being convinced that if there's this much smoke, there must be at least some fire.





Above left: Harriete Estel Berman, *Toast to the Bride,* copper with nickle plate, satin, nylon, 6½" h; **Left:** J. Fred Woell, The Late *Great Disposable Society* wall panel, 8" sq., 1984; **Above:** Bruce Metcalf

Metalwork '85
Plum Gallery, Kensington, MD
February 3–26, 1985
Holtzman Art Gallery, Towson, MD
March 15–April 12, 1985
by Joke van Ommen

This was the third exhibition organized by the Washington Guild of Goldsmiths to show the work of its members. Curated by New York jewelry designer Glenda Arentzen and Renwick Gallery curator Michael Monroe, the exhibit included 93 pieces by 43 metalsmiths, most of whom work in jewelry.

Part of the success of the WGG as an organization is its democratic structure and openness: There are no membership requirements; anyone working in metal or interested in jewelry may join. The guild's purpose is educational and informative. Its strength lies in the happy cooperation and exchange of ideas, both technical and artistic, within this varied group. Because of this openness, a membership show reflects a wide diversity in style and technical perfection. Work of relative newcomers to the field can be seen next to that of accomplished international artists. To review the show as a whole is, therefore, quite impossible. Instead I will concentrate on developments in style that I observed in comparing this show with the guild's last one, held in 1982, and discuss a few of the pieces that illustrate these developments.

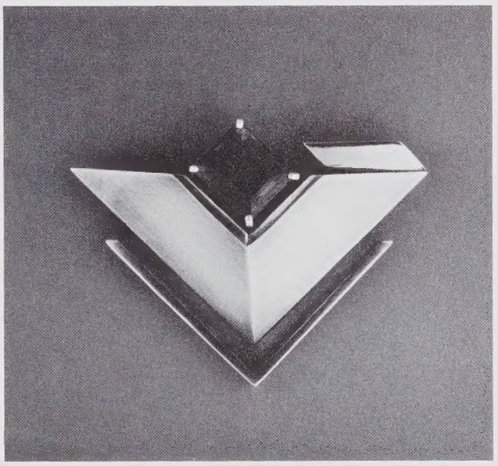
In the past three years a shift seems to be noticeable, from an emphasis on ornamentation and intricate designs towards a more structural and architectural approach in jewelry design. In general, the forms are simpler, paying less attention to beautifying, with its inherent danger of overloading a piece and losing one's self in details. We see, therefore, stronger statements, more mature and deliberate designs. One could also see that the workshops organized by the guild in the past three years were reflected in the pieces presented in the show, and this technical knowledge was used by the individual jewelers in many interesting and personal ways.

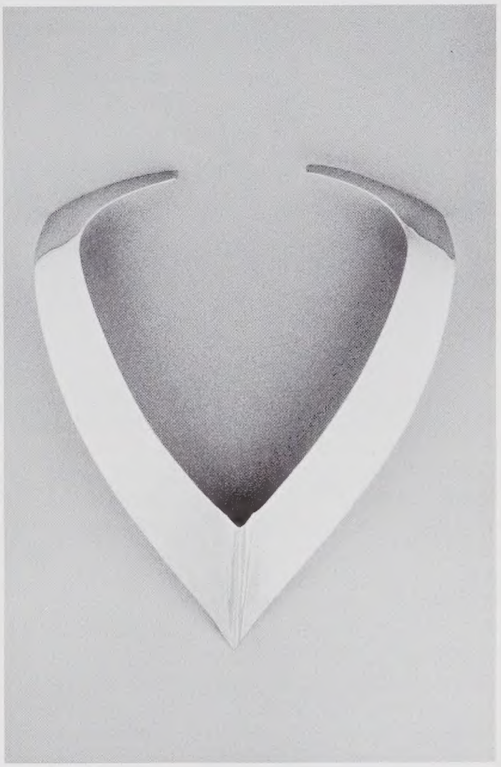
Of note in the show were the following: Lisa Vershbow's bracelet, conceived as an entity and equally interesting from all sides, had a strong sculptural quality. The contrast between the matt and shiny surfaces made the highly polished diagonals seem to protrude more strongly. In Christine Thrower's pin the simple lines of the metal were beautifully integrated and matched with the shape of the centrally set stone. In concept and execution the pin was a unity. Janet Peters' pin was more complex. Because she restricted the lines to a few angles, there was a logic and balance in design and composition. The color was strong: the blue of the lapis lazuli combined perfectly with the niobium blues. Tina Chisena gave her pin movement and force through agressive repetition of lines and sharp angles.

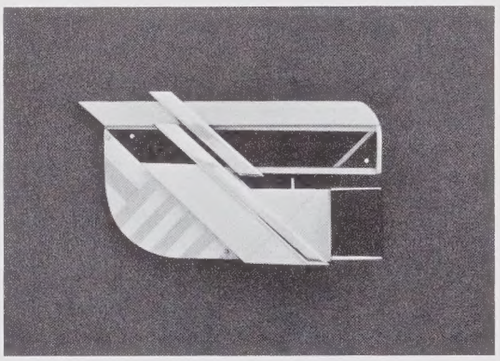
Some other examples of the many beautiful pieces on display were: Judy Frosh's pendant *Kyoto's Forbidden Gate*—subtle mystery and beautiful use of several oriental techniques. Yvonne Arritt's collar *Space Wing N*—very strong and clean in design. Although the piece was bold in shape and size, it suited the human body very well. Wilma Lehman's pin *Puffin*—flowing lines reminiscent of Art Nouveau. The same Art Nouveau inspiration was found in Betty Helen Longhi's *Necklace/Sculpture*, where the two separate parts seen together formed a sculpture in one flowing line. When the necklace is removed, the remaining form holds its own.

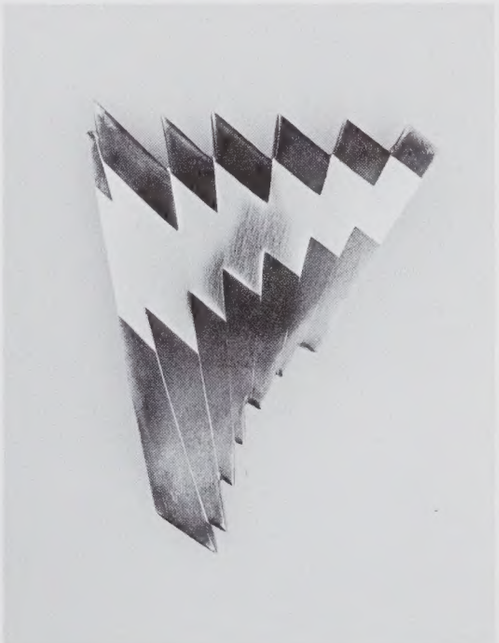
This show was an ambitious undertaking for an organization that must rely totally on volunteer labor, and its success is a tribute to the guild's vitality.

A 20-page black-and-white catalog documenting one piece by each of the 43 exhibitors, is available for $2 from: Washington Guild of Goldsmiths, 8532 West Howell Street, Bethesda, MD 20817.









Far left top: Lisa Vershbow, *Bracelet*, sterling silver, ebony inlay, 2 × 2½ × 1½"; **Far left below:** Wilma Lehman, *Puffin* pin, sterling silver, chatoyant tourmaline, 2¾ × 1½ × 5/16". **Left top:** Yvonne Arritt, *Space Wing N* collar, nu-gold, gold-plated, 8 × 6½ × 1⅜"; **Left below:** Jane Peters, *Number 5* brooch, sterling silver, niobium, lapis lazuli, 2¼ × 1⅛ × ¼"; **Below:** Christine Thrower, *Amethyst Sagittate* pin, sterling silver, 14k gold, amethyst, 3 × 2 × ½"; **Bottom:** Tina Chisena, *Brooch*, marriage of metals: sterling silver and kuromido, 3 × 2¼ × 3/16"

David Freda/Stephen Walker
Contemporary Metalsmiths Gallery,
Chapel Hill, NC
October 26 – November 17, 1984
by Jane Kessler

Though technical wizardry is a common bond between the two artists in this exhibit, the objects were nearly antithetical, both visually and philosophically. Stephen Walker works in the tradition of object-making — object for object's sake. His allegiance is to the seductiveness of the metal, to form, to visual enticement. His bowls, goblets and other functional objects in this show were primarily of married metals.

His interest in tesselation, defined by Walker as "a shape such as a checkerboard square or a honeycomb hexagon that, where repeated, covers a continuous surface," has presented extraordinary technical challenge. Some of the earlier pieces in this exhibition show evidence of Walker's technical battles, with less than smooth joining of the metals detracting from what should by nature of intent be a nearly perfect form. His later, more masterfully resolved bowl forms are begun as a soccer ball shape that is raised to a smooth sphere. In these he establishes an ambiguous visual pattern wherein background and foreground vie for dominance. Backs and fronts, insides and outsides of the vessels and platters are similarly competitive. His sense of and love for strong geometric patterns is rooted in a lifelong interest in Celtic art, and he uses some of these ancient patterns and symbols as sources. Since Walker's sources are often historical and symbolic, content must lie somewhere beneath the surface of these opulent works. Its significance to his audience, however, is negligible. These works are to be marveled at as beautiful objects.

For Freda, the metal is more a means to an end, its natural qualities often obscured. In direct contrast to Walker, Freda's work is pictorial and literal and he places integrity of object below integrity of statement or subject. Freda is obsessed by nature, reverent of it and critical of man's common irreverence for it. His love for the snakes, toads and creatures that he so faithfully depicts often infuses the work with an unfortunate preciosity. Several of Freda's pieces in this exhibition were mason jars with his exacting replicas of captured inhabitants convincingly clinging to sticks or wire mesh. Freda brings these works back around to jewelry by making the toads, lizards and other natural objects function as pins or neckpieces. As jewelry, the works are very successful but once again distract us from what I believe to be Freda's prime purpose, which is more evident in pieces such as *Crack of Bizarre Delights*, where a delicate hummingbird is caught in a deathly gauze. This comes closer to stating Freda's concerns about the fragility of life forms beyond humans and their dependence on our sensitivity to them.

Guardian, the most awesome of Freda's pieces, is, in function, a jewelry box. An exquisite snake guards the geometric box containing her eggs, which Freda has made of silver and finished in a pearlescent white surface. The combination of beauty and threat make this ambitious work very powerful. Within this collection of works, Freda seems clearly to ask that we look beyond the object and the metal, whereas Walker asks us to appreciate craft and the inherent beauty of the material.

Steven Walker, *Bowl*, sterling and copper

The Great West Metal Show and Symposium
Northern Arizona University Art Gallery
Northern Arizona University, Flagstaff, AZ
February 20–March 15, 1985
by Betsy Douglas

For the past four years The Great West Metal Show and Symposium has been held annually at Northern Arizona University in Flagstaff, Arizona. Hosted by Joe Cornett, head of the Jewelry/Metalsmithing Department at N.A.U., this special event has averaged each year over 100 participants from the United States and Canada. Distinguished artists invited to past shows and symposia, have included Lynda Watson-Abbott, Harlan Butt, Lane Coulter, Michael Croft, Bob Ebendorf, Mary Lee Hu, Irene Mori, Eleanor Moty, Gary Noffke, David Pimentel, Gene Pijanowski, Heikki Seppä, Helen Shirk, Don Williams, Kay Yee and Sandra Zilker. The 1985 event featured Hans Appenzeller, Arline Fisch, Christine Smith, Jay Burnham-Kidwell and Peter Jagoda in an exhibition, slide lectures and a workshop. The exhibition evidenced a broad range of individual statements including jewelry, objects and knives.

The elegant work of Hans Appenzeller of Holland, shown in an overview of the years 1973–1984 in 28 pieces, contributed his international approach to jewelry design. Appenzeller's designs reveal the Dutch desire that jewelry emphasize concept. Appenzeller works in series or collections, each investigating a particular theme, problem or special material. Two bracelets from the 1973 collection featured aluminum tubing and rubber straps to make the closing at the wrist or to act as a hinge to join the two-part band. Four bracelets from 1981 combined marblelike synthetic discs of corian inlaid with black pvc strands, some of which extended like black tentacles that bounce and bend when worn. A large, handsome cuff of women stainless steel exemplified Appenzeller's interest in textiles and principals of industrial design and engineering. More organic in character were the 1984 structured cuffs and woven matt earrings, cast in precious metals from filed woven strands of wax. These recent works continue Appenzeller's design sensitivity in creating elegant jewelry, dramatic when worn.

Arline Fisch also explores the use of textile techniques in metal to create bold, dramatic wearable forms. Her necklace brooch of platinum and 18k gold, entitled *Woven View*, incorporated a skillfully woven neckband accented with a detachable chevron-shaped woven brooch with gold and platinum triangles. Of particular interest were new works by Fisch in which she combined stainless steel mesh with gold leaf and precious metals. A large, triangular pendant *Steel and Silver #4* featured layered mesh and gold leaf combined with a silver triangle that had been subtly roller printed with the mesh texture and hung from a 14k gold neckring. The layers of mesh created a moiré pattern that gave an illusion of depth. The gold leaf glued into the mesh added a subtle color accent and a rich painterly quality to the work. Equally

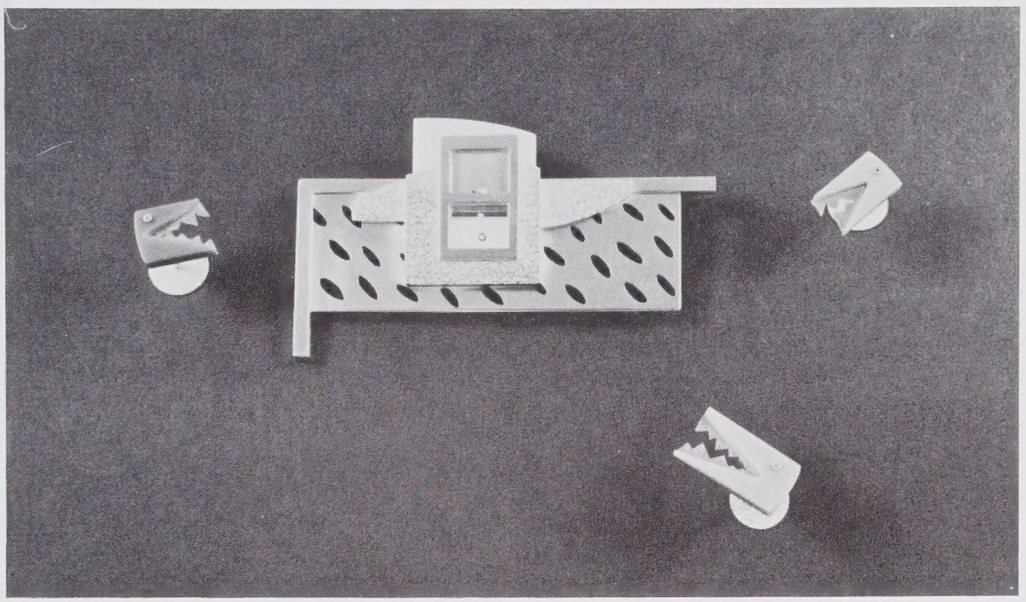
striking was *Double Brooch,* a metal collage of mesh, gold leaf, fire-gilding and silver, inlaid with nickel and copper. Fisch's 14 works demonstrated her continued interest in the wearability of jewelry and her desire to stretch the limits of what people will wear.

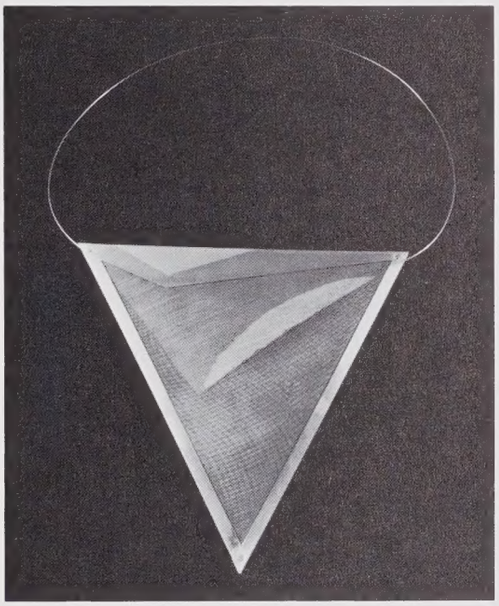
A contrasting approach was projected in the metalwork by Christine Smith. Not concerned with wearability, she uses the brooch format to create impeccably crafted, colorful and often humorous comments on her experiences and places she has lived. An especially cold winter produced *Frostbites,* a miniature window with shade set against a fragmented wall of silver pierced with tear-drop-shaped patterns. Outside this tiny environment were three colorful "frostbites" of turquoise, coral and purple acrylic. Mounted on tiny stands, they had rectangular heads with eyes and open mouths full of sharp teeth.

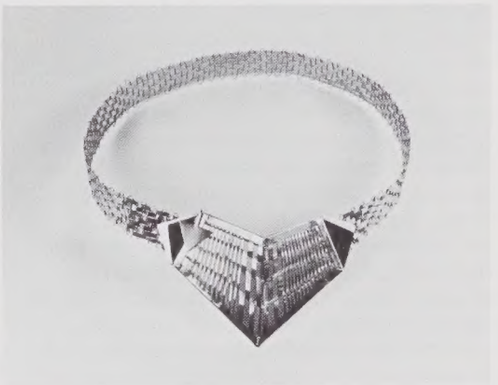
Humor was also evident in *Window Grille* by Jay Burnham-Kidwell. Made of forged steel and titanium, this 5′ by 2′ construction included images of a palm tree and flamingos. Kidwell is skillful in his forging, chiseling and joining. Characterized by classic simplicity was Kidwell's *Sardines Bowl,* a 12″ vessel of raised mild steel with a tiny chased sardine near the edge.

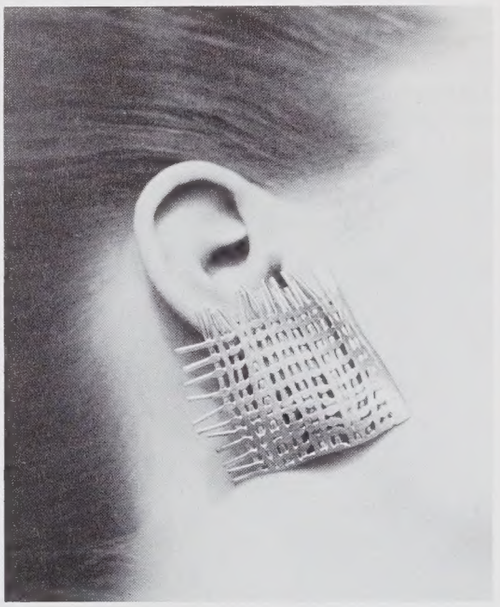
Peter Jagoda's recent works demonstrate his skill as a knifemaker. His graceful *4″ Thumblade* and whimsical *3″ Thumblade* were made of 01 steel and brass with handles of white micarta in which he has inlaid tiny shapes, dots and dashes of colored epoxy. Jagoda's knife forms were sensitively shaped and often detailed with grooved file work as an individual accent. Good examples were his handsome *Drop Point Skinners* with black micarta inlaid epoxy handles. Jagoda's knives are works of art that succeed functionally as well.

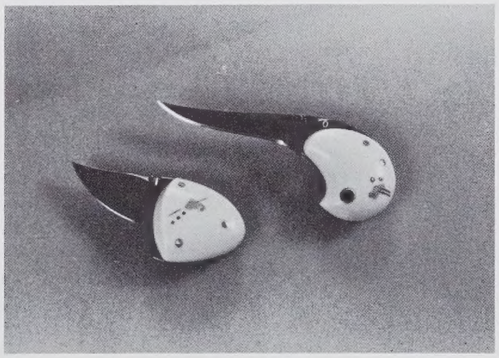
As in the past, this year's successful Great West Metal Show and Symposium enabled the enthusiastic participants to view a large body of well displayed jewelry and metalwork by each of the talented invited artists. Of particular value was the opportunity to hear the artists talk about their development. Fisch's hands-on workshop introduced various weaving techniques in metal. The slide lectures and informal discussions enabled students and professionals to share a stimulating and productive exchange of ideas and technical information. Allocades to Joe Cornett for his important contribution to the growing field of metal arts by continuing to host the Great West Metal Show and Symposium.











Clockwise from bottom left: Peter Jagoda, *"3" Thumblade* and *"4" Thumblade,* 01 steel, brass, white micarta, epoxy; Hans Appenzeller, *Bracelet,*corian with soft puc, 1981; Arline Fisch, *Woven View* necklace/brooch, platinum, 18k gold, 1980; Christine Smith, *Frostbites,* sterling silver, acrylic; Arline Fisch, *Steel and Silver #4* pendant, stainless steel mesh, sterling silver, gold leaf, 14k gold neckring, 1984. Photos: Cheyenne Harris; Hans Appenzeller, *Structured Matt Earrings,* sterling silver, 1984, Photo: Willem Diepraam

Learning and Earning
Jewelry Students Co-op, Kent State University, Kent, OH
Spring, 1985
by Bruce Metcalf

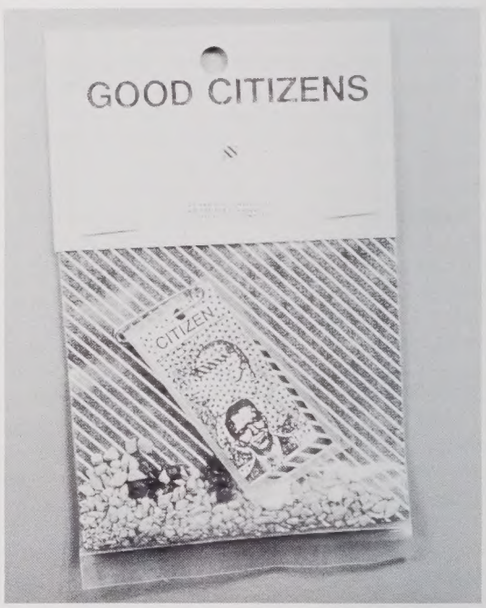
Every semester, the Jewelry Students Co-op at Kent State University sponsors a five-day jewelry sale. I organized the first sale in 1981 when I came to teach at Kent State, and it has since become an ongoing tradition. Advanced students are typically given assignments related to production techniques before the sale takes place. Second-semester students learn rubber mold-making and wax injection and are asked to make half-a-dozen pieces. On one occasion, the advanced class was divided into groups, who worked collaboratively on designing and producing a line of jewelry. But most often, students work on their own pieces, using their own priorities.

As in any grouping of jewelry, earrings and rings seem to sell best. Students also produce pins, bracelets, pendants and neckpieces. Prices are most often below $5, but sterling earrings and rings sell quite well above $15. Most students use the sale as an opportunity to let go and have fun, using all sorts of found materials in a collage-oriented approach. Local hobby stores and hardware stores contribute much of the raw material for this

Each piece must be mounted on a square of cardboard, or in a plastic bag, because all the work is presented on large pegboard panels. As a result, many students make a coordinated presentation of the jewelry and its packaging. Others use the opportunity to make exotic juxtapositions: a fashion design major made earrings of inner-tube rubber packaged in clear plastic disposable gloves; another student placed colored-Xerox pins in ziplok plastic bags.

The sale nets about $1500 in five days, 15% of which is donated to the Jewelry Studio and 10% is paid to the organizers of the sale. A coordinator is elected by the advanced class each semester, and he or she takes care of reserving space, inventories, advertising and setting up monitor schedules. It's a fairly involved job, and the 10% commission is a fair compensation for so much work.

The Jewelry Sale turns out to be educationally rewarding as well as profitable. During the week of the sale, most students are madly producing new pieces to replace depleted inventories, and a sense of shared goals emerges in the class. This cohesiveness helps motivate people year-round. Students also get a taste of the business aspect of jewelry making: the necessity for working rapidly and efficiently, the difficulties of deciding on a retail price and the desirability of accommodating public taste in order to sell a volume of work. Those students who are interested in becoming production jewelers use the sale as a low-risk environment in which to test new designs and tehcniques. Other students, less interested in economics, use the sale to experiment with fresh and energetic approaches to their work. Everybody learns something and everybody benefits.



Clockwise from above left: Jerry Cotlin, *Fishing float and plastic sheep* pin, $3.50; Georgette Patterson, *Earrings*, $2.00 pr.; Robert Williams, *Good Citizens* ID pin, $4.00; Kenny Davis, bracelets, silicone rubber, $3.00 ea.

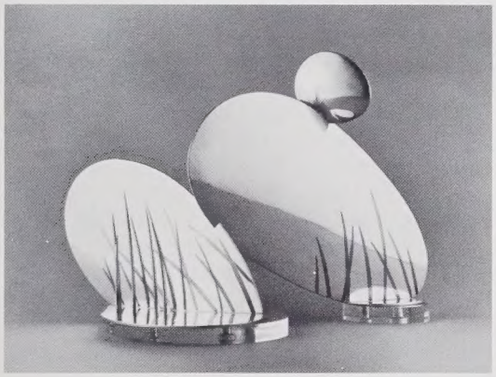
Two Sensibilities
Art Department Gallery,
Montgomery College, Rockville, MD
January 20–February 8, 1985
by Fred Fenster

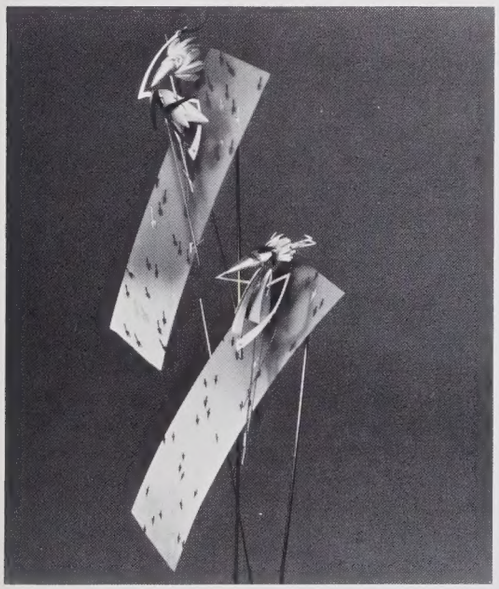
This exhibition marked an unusual juxtaposition of different styles and attitudes. While both artists had studied with Stanley Lechtzin at Tyler in Philadelphia, Yoo now teaches metals at the university in Seoul, Korea and Metcalf teaches in the art department at Kent State in Ohio.

The impressive array of work was strong in content and individuality. Yoo's pieces have softly flowing, gentle lines with subtle inlays and combinations of sterling, copper and nickel silver. Though smaller in scale than Metcalf's, they have a feeling of quiet power and timelessness. They glow with a soft, lustrous quality.

Both artists work with a great deal of emotional content, but Metcalf's pieces seem cathartic. Pointy, jagged elements float on thin rods and move restlessly in space. The surface of much of the metal is painted, and there is a sense of whimsy and humor in the treatment of form and surface.

The exhibition was beautifully mounted, enabling one to experience the quiet power of Yoo's work and explore the sense of play and adventure in Metcalf's. It was a fine example of the mature expressiveness of the two artists.





Top: Lizzy Yoo, *Windy Evening*, sterling silver, nickel silver, copper, acrylic, 17 x 24 x 16 cm; **Above:** Bruce Metcalf, *Meaned-Up Man & Woman*, 34½" h.

Martha Glenny: Souvenirs — le souvenir
Anna Leonowens Gallery, Halifax,
Nova Scotia
November 6 – 10, 1984
by Joanne Poirier and Paul Leathers

"Souvenirs — le souvenir" was a collection of 11 pieces dealing with a dichotomy in the interpretation of the word souvenir. Martha Glenny states, "There is a subtle, but quite distinct difference between the English and French definitions . . . of the word souvenir. This body of work plays with this difference of meaning and it suggests alternative sources for souvenir imagery." This duality exists within each piece and is reinforced by the presentation in the gallery. "The poverty of conventional souvenir imagery lies in its failure to express anything about the nature of the thing or place it depicts beyond the superficial."

Glenny's personal relationship with the Niagra area provides her with a source of alternate souvenir imagery, which is juxtaposed with a conventional souvenir format. The decal, shield and pennant shapes function as a point of reference for the viewer.

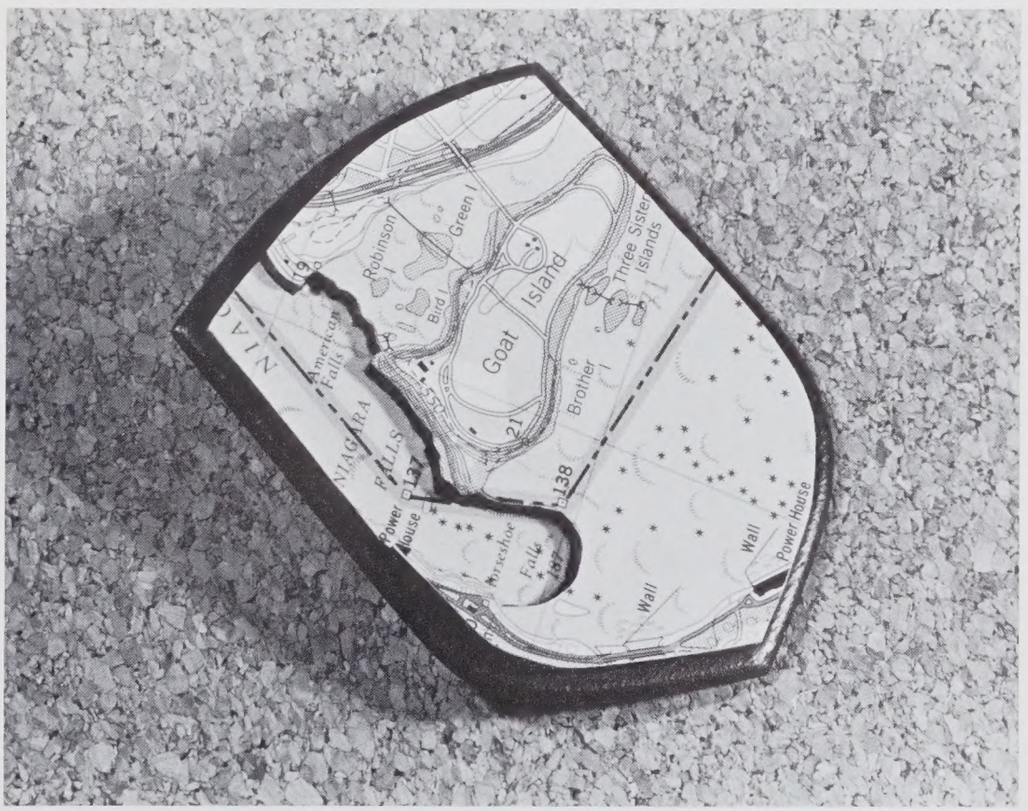
In *Rainbow Decal Pin* a photograph of the falls is overlayed, by means of a transparency, with a hand-drawn rainbow. Here we see a physical reality embellished by the artist's intent presented together with a traditional souvenir.

The two pennant forms challenge our definition of jewellery. Are these hand-held objects to be considered jewelry? Despite having no conventional means of attachment, these pieces are nonetheless body-referential and therefore function within the criteria of personal adornment. The imagery for these two pieces draws on Glenny's interest in the geological history of the site and conveys "something of the physical reality of, what is after all, an extraordinary natural phenomena." In this way Glenny offers a facet rarely seen by the casual observer.

In *Topographical Map Badge* the artist plays on the duality between the cartoonlike imagery of the map and the physical reality it signifies. The two-dimensional graphics are bisected and made three dimensional and reference is made to inherent structural qualities.

One might well ask whether these pieces continue to be successful when removed from the context of the exhibition. Seen in conjunction with their visual sources, they project a stong and coherent presence. Outside of the gallery, they remain fragments of a larger whole — each a souvenir of the event. Glenny's work should be viewed from the standpoint of being an installation piece. This was not a jewelry show but rather a show of work by a jeweler. While all the pieces were wearable, they dealt more with jewellery as art than with jewelry as precious object. This collection of work illustrated a new and exciting direction in Glenny's development as an artist.

Martha Glenny, *Typographical Map Badge*, wood, paper, silver, 65 × 45mm, 1984



Betsy Douglas: MFA Thesis Exhibition
Harry Wood Art Gallery,
Arizona State University, Tempe, AZ
October 15–19, 1984
by Anne Krohn Graham

Does our environment really have an impact on what we produce? If it does, then Betsy Douglas must find it comfortable working in the Southwest. Her work seems to echo the sensual forms of the mountains, which appear to fold in and out of the earth. Or perhaps she is inspired by the curves of the human body itself. One of her strongest works was an earpiece designed to cover the entire ear and which complimented the natural folds of the ear.

The same care, consideration and craftsmanship is to be seen on all surfaces of the pieces. She gives special attention to detail, such as how the pieces are terminated. Contrast in her pieces derives not from patina but from a subtle variation of white texture given the silver through scratchbrushing and hand polishing. Douglas's work displays a sensivity to angles, curves and proportion, as well as an awareness of how the pieces will be worn on the body. For this show, the culmination of her MFA degree from Arizona State University, she executed both wearable pieces and functional objects, including neckpieces and collars, bracelets, ear ornaments, rings and a pair of candlesticks. Although she involved herself with many techniques during her last five years at A.S.U., here she chose to focus on folding thin-gauge sterling silver to create a volume of form.

The quality of the work was matched by the originality of presentation. Douglas's professional background as a graphic artist and theatrical set designer contributed to her unique presentation of her work on opening night: A dance performance by the Desert Dance Theatre Troup of Phoenix gave the audience a dramatic introduction to the pieces. Each of four stylized mannequins was draped differently in teal blue fabric, representing four different ethnic looks. These soft black mannequins became the stage setting for the dance troup to adorn these figures with pieces of jewelry. The dancers, who were themselves dressed like mannequins, echoed the undulating flow of the folded metal pieces as they performed their interpretive modern dance. The choice of dance presentation added to the consistency of the show, as the dance movements and the metal movements complimented each other. The dancers were able to move with ease, indicating the comfort of the jewelry on the body.

In addition to the 16 pieces on display, the artist arranged for 10 other pieces to be worn by guests on opening night. These pieces were Douglas's constructed landscape series from which the folded forms evolved.

Although the previous series was done with integrity, the new work is more naturally flowing. Douglas has emphasized the crispness of the metal along with its sensuous qualities. She has chosen lightweight gauges to express this larger scale jewelry. The boldness of form carried well, although intrigue was created by her attention to detail. The work had a dramatic elegance, with concern for proportion.

Betsy Douglas has made reference to inspiration received from past and present — Mary Ann Scherr, Eleanor Moty, Mary Lee Hu and David Pimentel. However, her work has a distinctive singularity that comes both from maturity and feeling comfortable with materials. Her achievements can set an example for anyone working for this professional degree.

Betsy Douglas, *Collar #2 — Folded Form Series*, sterling silver, 14k gold, pearl, 5 5/16 x 5 1/2 x 15/16".
Photo: Bill Lorenz

Kristin Moore Retrospective
Artwear, New York City
March 7–16, 1985
by Vanessa Lynn

The word "retrospective" always sends a tingle of anticipation down the spine. For, at the very least, the viewing of an expansive, historical cross-section of an artist's oeuvre promises new insights into the complexities of the human creative process. At most, we have the opportunity to gather new ideas about an artist whose work we have only casually known, as well as about art itself and its function in a larger context. Applause, then, to Robert Lee Morris and Artwear, for offering the public such an opportunity with a retrospective of the work of Kristin Moore.

Moore is an anomaly within the Artwear stable. In a galley where resins, rubber and the unexpected dominate, Moore creates primarily in gold and semiprecious stones. While her designs are consistently innovative, they are rarely startling and always wearable. And while most of these art jewelers rely on their multiple gallery sales and commissions for income, Moore sells an extensive line to major department stores and boutiques nationwide. In short, her talent and hard-won business savvy has allowed her to produce well-made, well-designed jewelry that has broad appeal. Yet, apparently, it meets the rigorous design and quality criteria that are the hallmark of the ground-breaking Artwear.

The show, to its credit, included every piece Moore has designed in her 20 years in the field. The 200-odd examples were well displayed in five-year intervals from 1965 to 1985 and sometimes included photos of the artist from the period, as well as working drawings. The result provided a remarkable consistency of esthetic vision that was a delight to study and follow.

Moore designs pins, neckpieces and bracelets, but the backbone of her vitality has always been earrings. An education in sculpture is evident, as is her awareness of the human form. Her earliest necklaces and earrings are explorations of sensual line in space, employing thin gold wires in variations of curls and curves — some spiral, some referring to star formations, some ending in tiny pearls. An early design breakthrough for her was the extension of the actual gold design element to gracefully form the ear wire. These seminal pieces from the 60s clearly have the look of their time, when dangling earrings were in vogue. Yet, one notices in subsequent years her ability to return to the idea of the elongated wire curve, updating it, making it more minimal for one season, bolder for another, yet always, it remains her statement.

The work done in the years 1970–75 heralds a new direction. By using sheets of silver that were essentially folded, scored and cut, Moore begins to explore mass instead of line. Her earrings now gracefully sculpt and include the lobe, instead of using it as a display point. The forms seem to be inspired by nature, yet still have the curvaceous Moore esthetic. She notes that at this time she began to synthesize the lessons learned previously from the fabrication

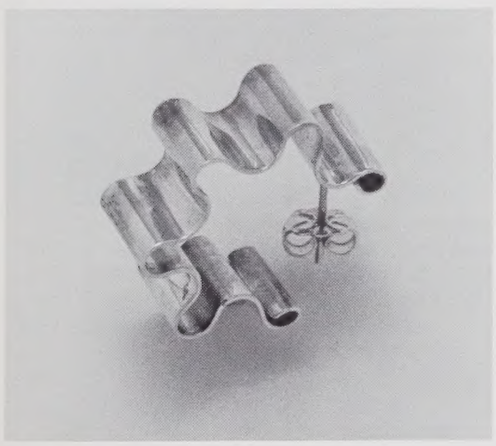
of her first efforts, with the on-going inspiration fine sculpture provides.

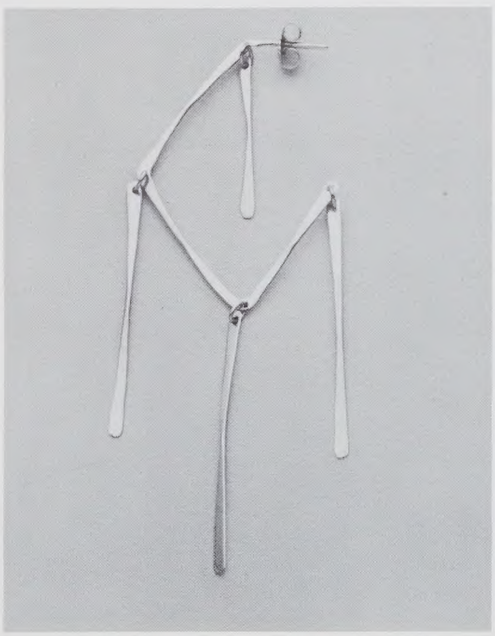
Also in these years, Moore made literal reference to a formal element that this viewer sees as quintessential to many of her ideas. This is the idea of a ribbon. Moore often seems to make inspired use of the infinite variety and linear mobility inherent in the casual drape of a single, long strip of fabric. A simple fold of ribbon could easily be the source for the design of a single line of curved and folded gold — a striking pin. In the 70s, the ribbon inspiration became quite literal — a pin took the form of an actual bow in sterling, with the knot accented in gold. Or the arms of a bracelet were the fluttering elements of a ribbon with the bow marking the center. Forms of this type are seen knocked off today; Moore, I believe, started them.

The breadth of ideas explored in these first 10 years are the basis for the later work. But the linear esthetic prevails, as does a willingness to explore new materials such as onyx, lapis, garnet and crystal.

The latest collection, made especially to coincide with the Artwear exhibit, seems like a radical departure at first glance. Large petalled cuffs, bold neckpieces hung on the body without structured closure and broad shield pins, all in silver or vermeil, mark a great change in scale. But the seeds for these successful concave and convex structural interplays, with their mobius strip references, were clearly sown in the collection of the 1970s. It is as if she now had the confidence (well-earned) to take some of the early concepts to their logical and contemporary conclusion. One is reminded here too, that often, Moore's ideas were ahead of their time.

The Kristin Moore retrospective showed the artist's development in a dazzling light. It had many lessons to teach. Other artists should remember the importance of maintaining a reference library of their own work, and other galleries should follow the Artwear lead to allow the public wider access to contemporary jewelry history. By providing such opportunities, we all have much to gain.





Above: Kristin Moore, *Earrings;* **Top:** Folded neckpiece and cuff

Micki Lippe: New York
Plum Gallery, Kensington, MD
October 21 – November 14, 1984
by Betty Helen Longhi

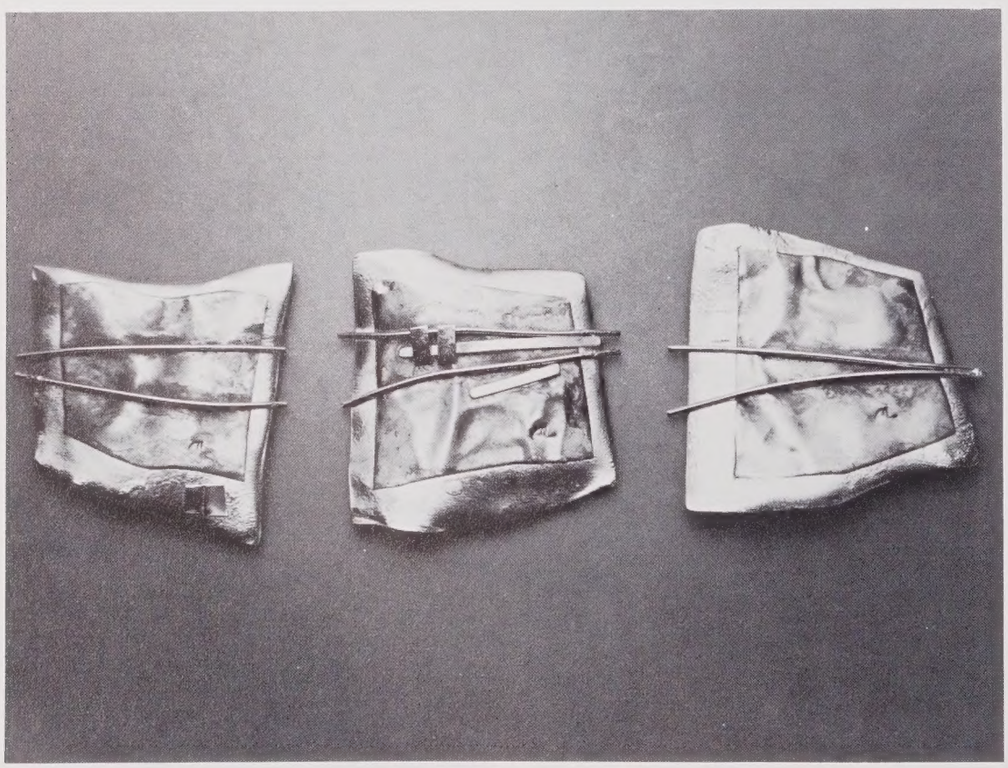
A new look was seen from Micki Lippe in this show. Recognized for her elegantly refined jewelry using fused and reticulated silver, Micki is a master at controlling the subtle nuances of a line or form. In this new group of 25 pins, necklaces and earrings, the control has been released, giving the pieces a spontaneity and freedom. The carefully articulated lines have been replaced by quick slashes and dashes, long single pieces of wire intersecting the form or multiple combinations of wire criss-crossed in a grid work or arranged in parallel patterns. One wonders how much of this change results from her move from conservative Charlottesville, Virginia to Oklahoma. She admits that her isolation and lack of close contact with other jewelers has resulted in a turning into herself and her surroundings for inspiration. The use of long single lines is relative to the open spaces and wide flat horizons that surround her.

A group of brooches appropriately named *Fragments* was most evocative of this new look. In these, the sense of spontaneity is most evident. They are quick points in time, sketches in metal. These pieces effectively show off her recent inclusion of color, using copper-flashed brass, which is heat oxidized to rich purples, blues and bronzes. Another series of brooches and earrings maintained Lippe's fused and scratch-brushed fine silver surfaces familiar in earlier work. Accentuated with small squares of gold as points of color and richness, these pieces were most effective in their lightness, delicacy and wearability.

In noticeable contrast to her brooches and earrings were the three major neckpieces in the show. The first two *Antique Red Beads* and *Black Onyx Beads* employed pillow forms in fused silver and gold as central elements in a multistrand bead necklace. The follow-formed pillows appeared rather heavy and did not relate well to the beads. One felt they were contrived in an effort to participate in the current popularity of beaded necklaces. In marked contrast, the third neckpiece *Black Shell Beads* was unique for its elegance and simplicity. Composed of a single strand of black shell beads with a central pendant of hollow-formed, heat-treated brass and two simple pieces of forged silver, it had a refined but primitive appearance. Strong and direct, one could envision it on the neck of an African priestess. According to Lippe, this necklace was inspired by her interest in African and Oriental art and is a blend of the two esthetics.

A small brooch entitled *Picture Frame* was notable for combining the best of Lippe's earlier style with the freedom and color of her new work. A scene of sterling silver trees on a background of heat-colored bronze gave the impression of infinite distance. This was enclosed by a frame of fused silver slashed at the bottom and "buttoned" together with tiny gold squares. The constrast of the expanding imagery of the picture and the containment of the frame held by these two points of gold gave a wonderful feeling of tension and excitement.

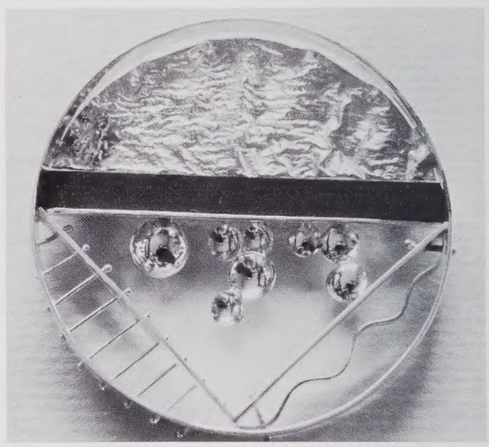
In her statement, Lippe says her concern is to make her jewelry as vital and interesting as she can and still have it be wearable. She has certainly accomplished that in this exhibition. One can only look forward to more exciting work in the future.



Micki Lippe, *Fragment Series* pins, sterling silver 14k gold, brass

Jude Ortiz: Goldsmith
Art Gallery of Algoma, Sault Ste. Marie, Ontario, Canada
September 18–October 16, 1984
by Jean Burke

One of the North's most outstanding goldsmiths, Jude Ortiz designs clean, uncluttered jewelry, reflecting a spatial quality that is the true essence of northern Canada. Her work in this exhibition included a brooch *Celestial Compass,* which combined 14k gold and sterling silver with ebony. Of note also was a pendant *Whale Life Saver,* an indication of the artist's intense interest in environmental preservation. Another outstanding piece was a brooch/fibula of 14k gold, titanium and seed pearls. Ortiz is a graduate of the Jewellery Arts Program at George Brown College in Toronto but has since returned to northern Ontario where she operates her studio near WaWa overlooking Lake Superior.



Jude Ortiz, **top:** *Brooch/Fibula,* 14k gold, titanium, seed pearls, 85 mm long; **above:** *Celestial Compass,* 14k gold sterling and reticulated silver, ebony, 48 mm d.

Rick Dingus, Jon Havener, Fred Parker
Gallery Karl Oskar, Westwood Hills, KS
January 4–29, 1985
by Ann E. Erbacher

The metal sculptures of Jon Havener, a metalsmithing professor at the University of Kansas at Lawrence, were exhibited at the Gallery Karl Oskar along with the photographs of Rick Dingus and Fred Parker. Havener's sculptures had a dramatic and powerful presence that overshadowed the two-dimensional work of his coexhibitors. His sculptures are a study in complexity and contrasts.

Havener's pieces here had a menacing quality, due primarily to two factors: their angular and sharply pointed forms, many of which were reminiscent of arms and armor, mostly knives, swords and helmets, and their dark coloration, consisting of varying shades of brown and black. Their aggressive appearance was reinforced by the artist's choice of titles: *Guarding, Crusade, Entrap. Guarding* was reminiscent of armor in general and of a Spanish conquistador's helmet in particular.

The influence of Cubism is strongly evident in the fragmentation of Havener's forms. The sculptures depicted several aspects of the same object simultaneously in a manner that clearly draws upon the Cubist tradition. The concept of time, so important to the Cubists, was also a concern of Havener's in these pieces. They are contemporary, yet appear to have been transformed over a period of time. The selective use of a green patina to accentuate certain details, in *Tri-pod,* for example, gave the weathered appearance that copper alloys develop over time. The organic coloration complimented the dynamic forms of the pieces. In this work, time was suggested with the idea that as a form ages and erodes, it breaks down into fragments. The resulting forms did not have the appearance of decay, but rather of growth and life. They were so filled with a sense of captured energy that one could almost imagine that they were undergoing metamorphoses as they were being viewed. The viewer was invited to examine these sculptures from different angles, to explore their every facet. Their mysterious, enigmatic quality was emphasized by one title: *Enigma,* although this was certainly not the only piece in the exhibition with that quality.

Havener attempted to integrate the sculptures with their bases, and did this well, for the most part. *Tri-pod,* however, did not achieve this integration as successfully. The abrupt transition between the curvilinear elements in the upper portion and the linear elements of the base was disturbing. *Crusade* and *Enigma* were better integrated, due to the inclusion of more linear elements in their upper portions, providing a smoother transition to their bases.

On the whole, Havener's pieces were very strong and worked quite well. It has been interesting to watch his work evolve and to see how the formal concerns of his smaller-scale, functional pieces carry over into his larger-scale, sculptural pieces. This exhibition provided a good, representative sampling of his recent sculptural work.

Collectors & Collections
An International Jewelry Symposium
Fashion Institute of Technology,
New York City
March 30, 1985
by Charles Lewton-Brain

Forgery techniques, medieval Jewish wedding rings and Cartier mystery clocks were among the subjects covered at the recent one-day symposium at F.I.T. Organized by Jean Appleton, the symposium brought together speakers from England, France and the United States as well as participants from as far afield as Ireland, Hawaii and Michigan. The broad theme attracted collectors, dealers, museum employees, manufacturers, benchworkers, freelance designers and hobbyists.

Perhaps the one-day format and short presentations contributed the strong sense of vitality and excitement that carried through the day. Coffee breaks and lunch provided people with time to meet, make connections and interrogate the speakers.

Subjects addressed were *Classical Jewelry* (Jack Ogden), *Castellani and Revivalist Jewelry* (Geoffrey Munn), *Renaissance Jewels in the Collection of Baron Thyssen-Bornemisza* (Anna Somers Cocks), *C.D. Fortnum and the Ring Collection at the Ashmolean Museum, Oxford* (Diana Scarisbrick) and *Art Nouveau and Art Deco* (Ralph Esmerian). Lectures were followed by a roundtable discussion and question period, which included Mr. Destino, president of Cartier and Mr. Curiel, vice-president of Christie's.

Presentation styles varied from animated (Ogden) and desiccated (Scarisbrick) to great emotive salesmanship. This last was epitomized by Esmerian describing a face on a Lalique piece with "That pure naiveté of the Bretagne child" and later when speaking of some of Lalique's work "that mystical, depraved sense of the other side of Art Nouveau, that seamier, demonic side of man".

Ogden's presentation offered much anecdotal and technical information. He proposed four areas of consideration in evaluating and understanding the ancient jewelry object: 1) Supply of raw material, mined; alluvial gold, melted works of conquered peoples or obsolete fashion and coin. Political, economic and geographic factors have to be examined to understand a work. 2) Technical knowledge, as revealed by hearsay and pictorial evidence as well as analysis, this last illustrated by a number of intriguing photomicrographs of ancient pieces demonstrating their manufacture in a sheet metal technology (1/100 of an inch diameter wire made by rolling twisted sheet between flat surfaces). The descriptions of forensic analysis in the context of discovering forged ancient works was of special interest. 3) Individual skill and knowledge. The point here is that it is not material value but skill and craftsmanship that "transcend the centuries" to give a work great contemporary value. The assertion that a modern worker using the original techniques to deliberately copy an ancient piece would produce a perceptively different work suggested that work is really of its time in cultural as well as technical terms. 4) The customer—without one there is no jewelry. Evaluating a piece of jewelry in its social and economic role is the last and most important consideration. The customer is in a sense the force that produces the work.

Jon Havener, *Tri-Pod,* brass, steel, 48 × 32", 1983. Photo: E.G. Schempf

The other presentations were valuable in placing jewelry from about 1400 to 1850 in various art historical and stylistic contexts. The carefully chosen works shown were masterpieces of their times and styles.

Esmerian's presentation on Art Nouveau and Art Deco jewelry and objects was exquisitely illustrated by his own slides and various works brought gasps from the audience, perhaps as many could relate better stylistically to them than to earlier works. It was exciting in part because of his descriptions (mellifluous hucksterism) and was supported by his establishing a good historical and corporate context for the works. Details such as Lalique's use of plastics and mixed materials intrigued participants.

The roundtable with Curiel of Christie's and Destino of Cartier consisted of a question-and-answer session and provided insight into the world of very expensive and historical jewelry sales and markets. A contemporary Parisian jeweler named Jaa was mentioned, whose work is in such demand that one man registered his two-year-old son to have his future wedding rings made. Homage was also paid by Destino to the large number of young jewelers working in nonprecious materials for the fashion market. Finally, Esmerian's comment that an artist's creativity lasts only 15 to 20 years elicited protests from the audience.

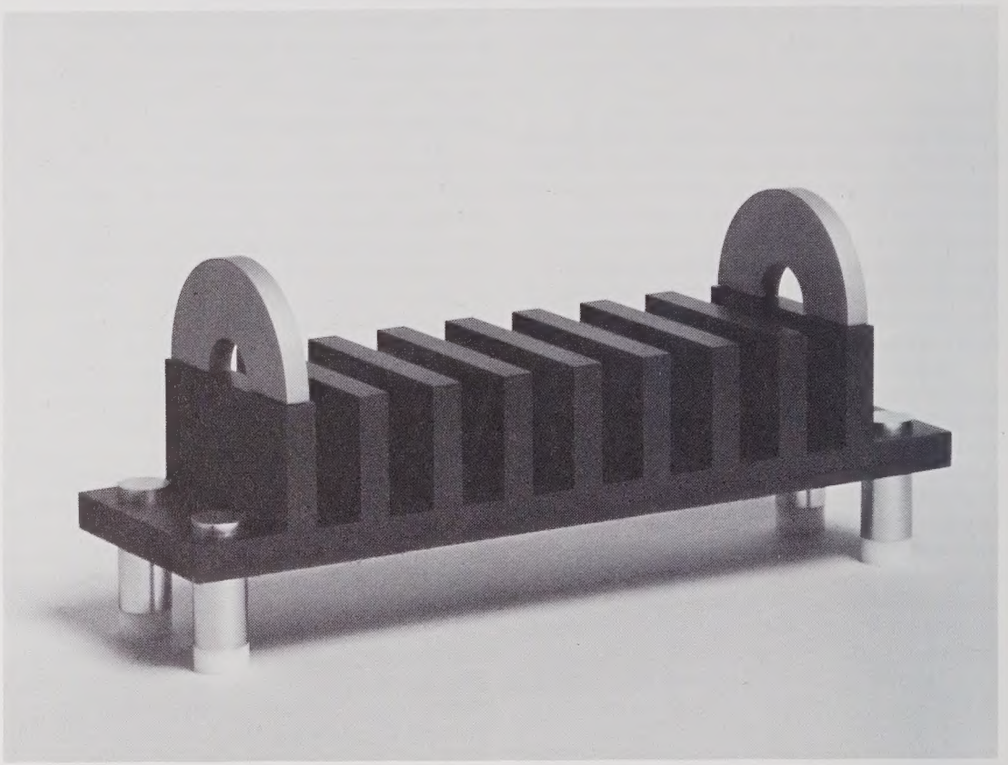
This symposium was well organized and presented, the speakers were among the best and the audience animated. The one-day format maintains a pitch of excitement throughout. F.I.T. plans to develop a series of such mini-symposia including one in November 1985 to coincide with the exhibition of the largest group of Lalique works in one collection on loan from the Gulbenkian Museum in Lisbon, Portugal.

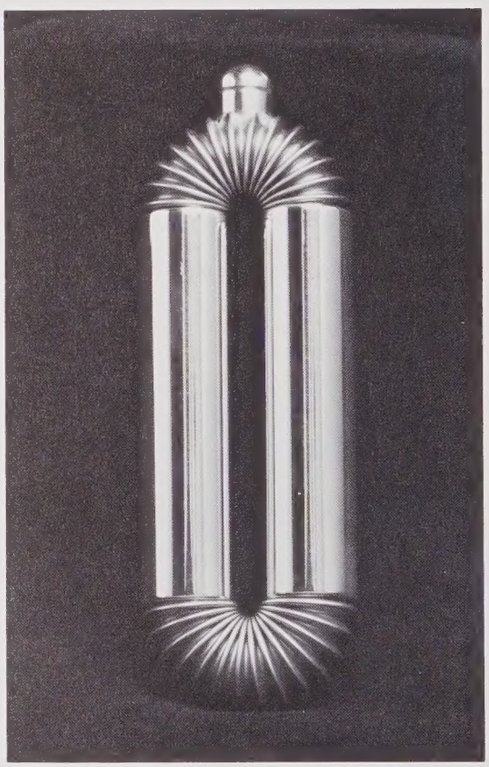
Passing Out
John Holden Gallery, Manchester Polytechnic, Manchester, England
November 6–23, 1984
by Peter Gainsbury

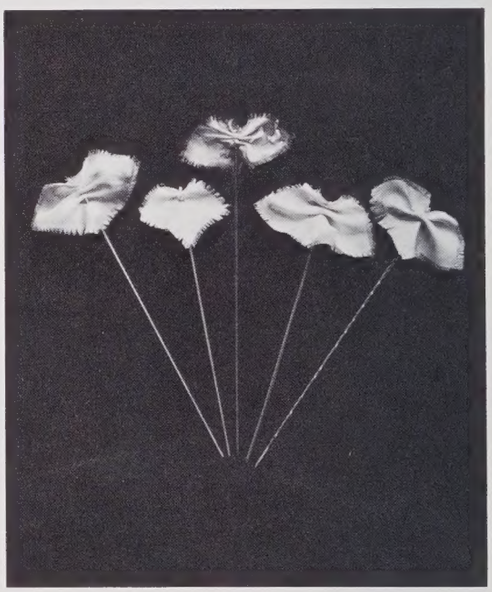
Passing Out in 1984 was, for the first time, held outside the City of London and Goldsmiths' Hall. It represented final year work of silversmithing and jewelry design courses at 22 art and design colleges around the British Isles, offering Higher National Diploma and BA(Hons) Degree level courses. The selection of pieces was up to each college. Also represented was post-graduate work from the Royal College of Art.

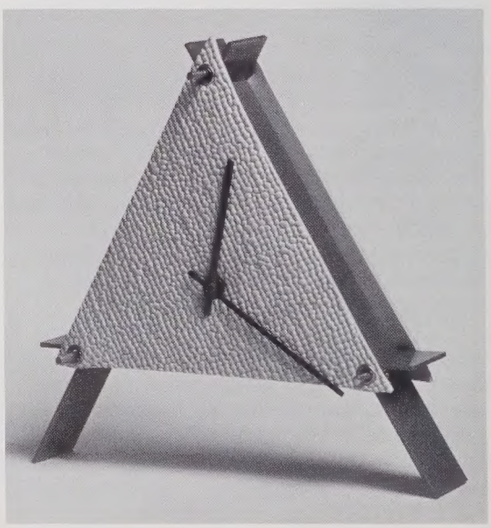
Each design course has its own character as was visible from the displays, although there were common elements of design and technique. The three-year degree courses in design follow a one-year general art and design course, often taken at a different college. There are also two degree courses in the London area that incorporate an extra "sandwich" year spent in industry, and the Scottish system involves four-year degree courses that incorporate the general first year at the same college. The two-year Higher National Diploma courses follow a two-year course at Ordinary National Diploma level, thus equalling the four years total of the degree courses. These higher diploma courses are new, and the students finishing this summer represented the first "crop," with some exciting results. There is a slightly greater technical emphasis to these courses than in the degree courses, but they have not yet been going long enough for their philosophy to be judged by their results.

Inventiveness was shown to a high degree by many of the designers of the pieces on exhibition, and although the pieces were not always high level, virtuosity was fairly frequently noticeable in the exceptions. Students of three or four years are only beginners after all, and these skills have taken the men who utilize them a lifetime in the trade to acquire. In England the traditional high level of skills involved in both the silversmithing and jewelry industries has been severely depleted by the disappearance of many well-known firms. The Goldsmiths' Company is most concerned to maintain the high level of design and craftsmanship traditionally associated with the silver and jewellery industries. The so-called "alternative" industry, composed largely of individual designer-craftsmen creating original pieces in small workshops, has been set up by the predecessors of these same students, who have found that the only way to get their ideas through to the public is to make and market them themselves. This has been a refreshing, welcome development. The communication gap still needs bridging between the expertise of established people in the trade and the innovative approach of young designers.









Clockwise from above left: George Land, *Flask*, Sheffield City Polytechnic; Robert McEwan, *Toast Rack*, City of London Polytechnic; Sue Rickhuss, *Stick Pins*, silk on titanium, City of Birmingham Polytechnic; Jane Dickinson, *Clock*, neoprene and acrylic, Manchester Polytechnic

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HEALTH

Health Hazards Questions & Answers

by Linda Weiss-Edwards

Dear Linda: In the fall issue of Metalsmith *you mentioned Grifflux #1. Is this flux better than Handy Flux because it contains no fluorides? Where can Grifflux #1 be purchased? My main concern for improvement in my own studio is a ventilation system. From your article in* Metalsmith Papers, *I gather a local system for soldering and pickling areas must be made to fit each studio? —Beth Carey*

Dear Beth: Gifflux #1 may be purchased from Otto Frei & Jules Borel, 114 Third Street, Oakland, CA 94607. Telephone: (415) 832-0355. They are supportive of the Society of North American Goldsmiths, and you should mention that you are a member when you place your order. I recommend Grifflux because it contains no free fluorides and I particularly like a paste flux for the long, continuous seams in some of my holloware projects. Frei & Borel also sells a fluoride-free liquid flux for hard soldering gold, silver and platinum alloys. It should work like Batterns. It's called "K" flux; 4 ounces costs $3.50. When tested in our studio we found it to be a good alternative to Batterns, although it seemed to require more heat to make gold solder flow.

Your understanding of ventilation is correct. A ventilation system for pickling, soldering and kiln operations, should be tailored to each individual studio situation. There is a new book out that you may find helpful in setting up your ventilation system. *Ventilation: A Practical Guide,* by Nancy Clark, M.A., Thomas Cutter, P.E., Jean-Ann McGrave, M.S., Center for Occupational Hazards, New York, 1984, $7.50. This book is concise (approximately 100 pages), complete and easy to understand. The information is clearly and logically presented, and it is applicable to single-person studios, light manufacturing and classroom situations.

Some other safety products were provided by Frei & Borel for evaluation, and are available from Frei & Borel. They were tested and evaluated by John Edwards in the manufacturing studio of Weiss/Edwards Designs. The soldering blocks were tested for high-heat performance while soldering 14k and 18k hard solders.

German Soldering Block ($2.75). This is a tall, square bricklike block, similar in shape to a charcoal block. It took heat well, it did not disintegrate nor break down under high heat. It did not take heat away from the piece. The block will hold pins and binding wire used in soldering jigs. The block did not emit any offensive fumes when subjected to high heat. The only problem encountered was when soldering jump rings, it seemed to inhibit a complete flow of solder if any of the joint was in contact with the block. But if a soldering probe was used to pivot the joint off the block, the solder would flow as expected. This block does not contain asbestos.

Abestos-Free Soldering Block ($6.70) #54.210.1. This is shaped like the old asbestos soldering pads and comes in two sizes: 6 × 6 × ½" and 12 × 12 × ½". An acidlike smell came off the block when heat was applied. It burned John's eyes and nose (testing was done without masks and filters so fumes could be detected). The block also had a tendency to disintegrate with high heat.

Cricket Safety Glasses, clear #9180 ($6.95) and infrared #3.0 ($9.95). Both glasses are *great.* They are comfortable to wear, afford good protection, are impact-resistant (not unbreakable) and the lenses do not distort.

Submit questions for this column (typewritten, double-spaced) to Linda Weiss-Edwards, P.O. Box 1032, Sausalito, CA 94966.

The author of this column assumes no liability for the processes, procedures and precautions recommended herein.

TECHNICAL BRIEFS

Fire Stain on Brass

by Tim McCreight

Dear Tim: I'm looking for help in removing a copper deposit that forms on brass and bronze alloys during pickling. I've been using either hand finishing by abrasion or bright-dipping, but both have their drawbacks. Is there something else I can try? —Philip Smith, Norristown, PA

Dear Philip: Your problem is basic to copper alloys. At high temperatures copper and its alloys combine with oxygen to make several oxides, the most important being cuprous oxide and zinc oxide. The latter is an easily dissolved film that comes off in just about any subsequent rinse. If the work is pickled in a mild sulphuric solution (like Sparex #2) the copper oxide is reduced to pure copper. This is the pink-orange film you're finding on your work. As you might have noticed, increased temperature will create a thicker layer of copper. Polished surfaces will oxidize more slowly than rough ones.

Most commercial solutions to this problem rely on bright-dipping, or a quick bath in acid to attack and dissolve the copper. Typical solutions use (by volume) 25% nitric acid, 60% sulfuric acid and a trace of hydrochloric acid. These are generally used at room temperature. Parts are dipped in pickle, rinsed, dipped in bright dip, rinsed and thoroughly cleaned. In a factory setting that deals with a single alloy and repeats steps with great regularity it's possible through experimentation to arrive at a concentration of bright dip and a system of application that will give consistently excellent results. For the studio craftsman who works with several alloys and whose line involves diverse work, the process is less satisfactory. The additional hazard of this super-strong acid is enough drawback to make many people shy away from bright-dipping.

A less common and somewhat safer pickle specifically for copper and brass can be made of:

Concentrated sulfuric acid, 4–10% by volume
Sodium bichromate, 4–8 oz. per gallon
Water, remainder

Ferric sulfate may be substituted for sodium bichromate in the above recipe, at the rate of 10–25 oz. per gallon. After a standard soaking in Sparex, rinse the work and immerse it in this solution at room temperature. The duration of the soak will depend on the depth of the copper stain. After removing from this second pickle, wash the metal thoroughly with soapy water.

If abrasion is the route to go, your next thought would be to investigate tumble (also called barrel) finishing. One choice will be vibratory polishing, a process in which abrasive-packed plastic or ceramic pieces are cascaded over the work. This is quite fast, easy and versatile. The alternate choice is tumble finishing, in which the work is packed into a sealed drum along with steel media and a liquid cleaner. The drum is rotated by machine, tumbling the work over and against the media. This is slower but permits the use of heavy material like steel. These burnish and work-harden simultaneously.

Send questions for this column (double-spaced, typewritten) to: Tim McCreight, 23 Mill Road Circle, Boylston, MA 01505.

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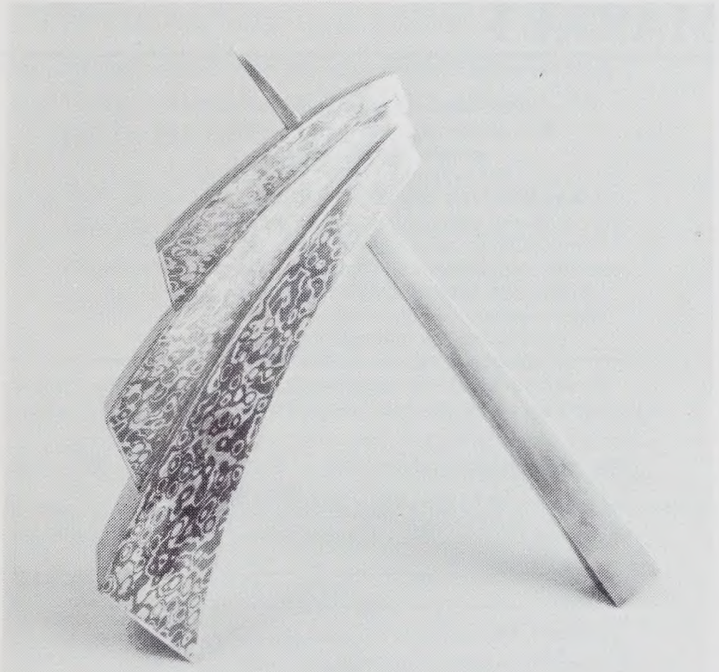

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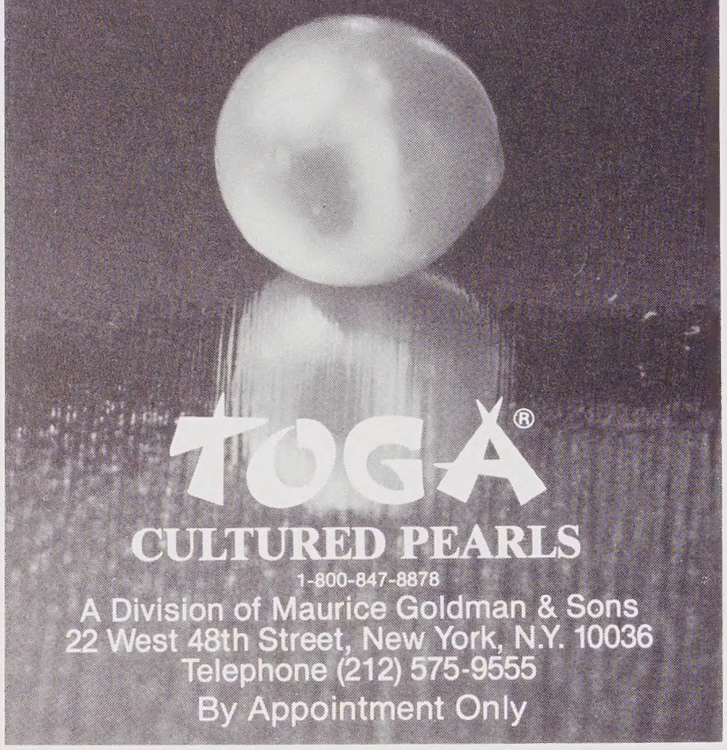

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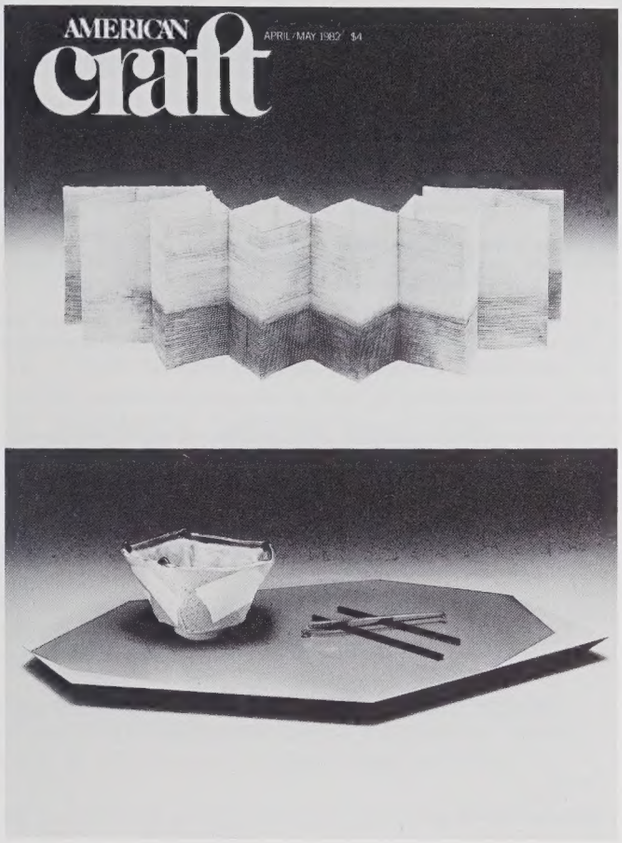

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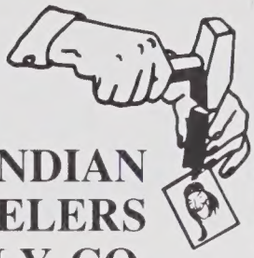

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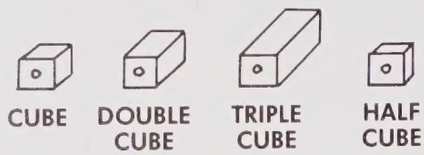

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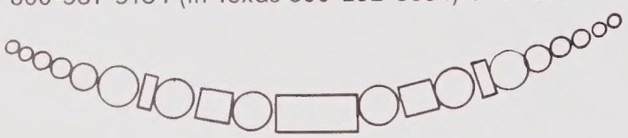

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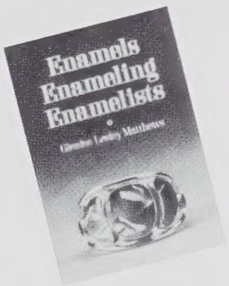

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